Rationality in Greek Thought

edited by
MICHAEL FREDE
and
GISELA STRIKER

RATIONALITY IN GREEK THOUGHT

For Günther Patzig

PREFACE

In the summer of 1991 the Wissenschaftskolleg zu Berlin provided us with the opportunity to invite a group of friends and colleagues to a week-long seminar, during which we read and discussed papers on various aspects of rationality in Greek thought. At the end of five days of lively discussion, the participants agreed to revise their papers in the light of criticism and suggestions, and to try to publish them together.

We are grateful to all those who have made this project possible: to the Wissenschaftskolleg for providing help with the organization and, above all, ideal surroundings for our discussions, formal and informal; and to the Otto-und-Martha-Fischbeck-Stiftung for generous financial support. We were pleased that Oxford University Press agreed to publish the collection, and we would like in particular to thank Peter Momtchiloff and Robert Ritter for their patience and efficiency in seeing the volume through the Press. Thanks are also due to Marcus Quintanilla for assisting us with preparing the contributions for publication.

Philosophy and philosophical scholarship are greatly indebted to Günther Patzig—for his work on Kant, on Frege, on ethics and applied ethics, and in particular for his work on ancient philosophy, which combines in exemplary fashion historical and philological scholarship of the highest order with a robust yet acute and subtle sense of the philosophical problems and issues involved, and how they might best be handled. His book on Aristotle's syllogistic transformed the discussion; it will retain a place of honour in the history of scholarship and continue to serve as a model long after its results have been absorbed, modified, or even sometimes discarded by later research.

The editors of this volume owe a special debt of gratitude to Günther Patzig. It is to him in large part that they owe their academic training and, more importantly, a sense of the values involved. Conspicuous among the beliefs Günther Patzig managed to instil in his students was the belief, perhaps even faith, in reason—the belief that rationality was a matter of painstaking, detailed, minute reflection and hard intellectual work; that it

might not lead as far as one would wish, but that there was no acceptable alternative to it, in scholarship, in philosophy, or in life.

This book is dedicated to him with gratitude and affection.

M.F.
G.S.

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LIST OF CONTRIBUTORS

JULIA ANNAS is Professor of Philosophy, University of Arizona

JONATHAN BARNES is Professor of Ancient Philosophy, University of Geneva

JACQUES BRUNSCHWIG is Professor of the History of Ancient Philosophy, Emeritus, University of Paris-I

JOHN M. COOPER is Professor of Philosophy, Princeton University

DOROTHEA FREDE is Professor of Philosophy, University of Hamburg

MICHAEL FREDE is Professor of the History of Philosophy, University of Oxford

DAVID FURLEY is Charles Ewing Professor of Greek, Emeritus, Princeton University

G. E. R. LLOYD is Professor of Ancient Philosophy and Science and Master of Darwin College, University of Cambridge

MARIO MIGNUCCI is Professor of Ancient Philosophy, University of Padua

MALCOLM SCHOFIELD is a Fellow of St John's College, University of Cambridge, and University Lecturer in Classics

RICHARD SORABJI is Professor of Philosophy, King's College London

GISELA STRIKER is George Martin Lane Professor of Philosophy and of the Classics, Harvard University

Introduction

MICHAEL FREDE

We may safely assume that the Greeks always had supposed that human beings think about things, that they can figure things out, that they exercise good or bad judgement, that they can be sensible or reasonable, or fail to be so, that some of them are quick-witted or crafty and some rather slow, and that, at times, they can be out of their mind. If we have any doubts about this, we just have to read Homer.

It is another question whether the Greeks conceptualized this in precisely the way we do. It seems obvious on quite abstract theoretical grounds that they did not. The general conceptual framework and the general understanding of the world and of human beings have changed so much since early antiquity that these changes cannot but also have affected quite substantially the particular notions in terms of which we think about, and try to understand, human thought and judgement. What seems obvious on theoretical grounds is borne out concretely, for instance, by the difficulties one runs into in the simple attempt to translate Homer. When Homer has Paris tell Hector (*Il.* 3. 63) that in his chest he has an intellect (*noos*) without fear, it is obvious from this very passage, as it is from many others in Homer in which he talks about the intellect, that Homer cannot be talking precisely of what we mean by 'intellect'. When (*Il.* 23. 698) he describes Euryalus, knocked out by a blow to his jaws, as having lost sense or his senses, as senseless, unconscious, he says that Euryalus is sensing or thinking other thoughts (*allophroneonta*); obviously he assumes that his sense (his *phren* or *phrenes*), under the impact of the blow, has stopped functioning in the way it works when we are sensible, but rather works in a different way, producing other thoughts. To say the very least, Homer does not conceive of intellect or of sense in quite the

same way as we do. Indeed, one has to wonder whether it is not misleading to present him as thinking of the intellect and of sense at all, given how differently he conceives of them.

Hence yet another question arises, namely whether the Greeks from the earliest times onwards had a conceptual framework within which they could understand and explain the phenomena initially referred to, which at least very roughly corresponds to our conceptual framework, for instance in that it distinguishes more or less the same features, abilities, functions, and parts or aspects of persons involved in human thought. More specifically there is the question whether the Greeks, from the earliest times onwards, had a conceptual framework in terms of which they thought about thinking, in which something held a place analogous to the one occupied in ours by reason, and in which, as a function of the notion of reason, or its analogue, there was a notion corresponding to our notion of rationality.

This might seem a puzzling question. For one might suppose that, given that the Greeks did conceive of human beings as thinking, as making inferences, they must have attributed reason to them. For one might think, to talk of reason just is to talk of the ability of human beings to think, to make inferences, to figure things out. Indeed, one might think that to talk of reason was as non-committal as it is nowadays to talk of mind. In saying that one has something in mind one does not commit oneself to the view that there is a mind in which one has something. But it seems obvious enough that our talk of reason, however we construe it nowadays, goes back to a time when 'reason' was taken to refer to an ability or faculty or part of a human being in terms of which one would account for a human being's thinking, drawing inferences, figuring things out, and the like. And the question is whether the Greeks always had a notion analogous to this notion of reason, though they may have conceived of this ability, faculty, or whatever is in question, somewhat differently. One may be inclined to think that this question is to be answered in the affirmative.

But it would be a mistake to take this for granted. For there is evidence that some Greeks, even Greeks as late as in Hellenistic times, did not conceptualize things in such a way as to assume that there was such a thing as reason, in terms of which we can explain that human beings think, draw inferences, figure things out, and the like. They conceptualized things in such a way as to assume that

there is such a thing as memory which is quite powerful, more powerful than we nowadays would assume, in any case powerful enough to account for thinking, drawing inferences, figuring things out and similar functions we attribute to reason. Indeed, the so-called Empiricists in Hellenistic times denied the existence of reason (cf. Galen, *Subf. Emp.* 87. 4–9, 28 ff.), treating it as a useless speculative theoretical postulate introduced by some philosophers, though one of them, Heraclides of Tarentum (*c.* 100 BC), took a more accommodating position by allowing for talk of reason, as long as this was understood not to commit oneself to there being such a thing as reason (cf. ibid. 87. 12–21). The question is whether the Empiricists, in rejecting such a thing as reason, were trying to revise the way Greeks always had thought about things, or whether they were objecting to a way in which the Greeks, under the influence mainly of the philosophers, who only introduced a notion of reason to suit their philosophical purposes, were more and more coming to think about things.

This is a delicate question, in part because it is not entirely clear what would settle it, since it is not entirely clear what is to count as a notion of reason, let alone as an analogue of it. On balance I think that the answer is that the notion of reason originally was a philosophical construct, rather than part of the framework in terms of which Greeks had always thought about things and which philosophers just tried to articulate further. Homer does, of course, as we have seen, talk about the *nous* of his heroes, or about their sense (*phren*). But though *nous* is the word which later philosophers like Aristotle will use to refer to the intellect or even, more generally, to reason, it is clear that in Homer the word refers to a rather specific ability, namely the ability to, for instance, quickly get an overview and an understanding of a situation. Homer does refer to a number of, in a large sense, cognitive abilities, but there is no notion of an integrated system of abilities which roughly plays the role of reason in explaining how we come to have beliefs about things and how these come to guide, or fail to guide, our actions. Such a notion of reason only seems to emerge very slowly under the influence of philosophical considerations, and we only meet it in a full-blown developed form in Socrates, Plato, and Aristotle. But it is telling that even then, and continuing through antiquity, there is a certain wavering in terminology between *logos*, *to logikon*, *nous*, *hegemonikon*, *mens*, *ratio*, and other terms; this wavering is hardly

intelligible if reason had been an ordinary notion, for which there would have been an ordinary standard term, if there all along had been an ordinary notion of reason, of which the different philosophical notions were just elaborations, trying to fit this ordinary notion into the framework of the respective philosophical theory.

To put the matter slightly differently. For us the mere assumption that it is constitutive of us that we are endowed with reason, and that our behaviour has to be understood accordingly, seems trivial. It is easily identified with the platitude that we have thoughts and beliefs, some of them arrived at by reasoning, and that what we do, how we act, also very much depends on what we think and what we believe. But this assumption was originally far from trivial, and certainly did not amount to the platitude mentioned, which even Homer, we have to assume, would have gladly subscribed to. For it seems that the notion of reason was introduced in the first place to explain how our behaviour can be understood at least in part in terms of our thoughts and beliefs, and how it can be understood as failing in part because our thoughts and beliefs are failing, because we fail to make proper use of the capacities of reason.

The question of the origin of the notion of reason, however difficult it may be even to articulate it precisely, does seem to me to be of great importance. For, if in its origins it is an ordinary notion, we have to identify this notion and to explain the different ancient philosophical notions as developments of this ordinary notion. Seen in this way ancient conceptions of reason will seem to make rather overblown and implausible assumptions about something much more modest and ordinary in order to satisfy the demands of the respective philosophical theory, as when, for instance, Aristotle claims that reason has an intuitive grasp on principles. And modern conceptions of reason will seem to be much more faithful to an ordinary conception of reason which, in some form or other, had been there all along; they will seem to free us from speculative and dubious theoretical elaborations of, and accretions to, an ordinary notion which has served us well enough for so long. If, on the other hand, the notion of reason in its origins is a philosophical construct, we have to see that our own notion of reason, however ordinary it may seem to have become, in its origins rests on certain substantial identifiable assumptions which we may want to question.

However we decide this question, it is clear that we only get a fully developed notion of reason which is conceived of in such a way as to account for our cognitive abilities and their exercise, but also for the role thought plays in action, when we come to Socrates, Plato, Aristotle, and the Stoics. (I will in what follows leave aside the Epicurean notion of mind. Though the Epicureans, of course, do have an account of thinking, which in many ways resembles the Empiricists', there is a question to what extent they did have a notion of reason.) All later ancient thought about reason and rationality will in large part evolve in response to what these philosophers had to say about reason. And so I want, to begin with, to focus on the notion of reason which we find in these philosophers. I will then briefly turn to the prehistory of this notion as it slowly emerges in Greek thought, and I will, finally, turn to some aspects of its evolution in later antiquity.

Now, to consider the notions of reason these philosophers had is a very major undertaking. The notions differ very substantially from each other, and each is of considerable complexity and subject to scholarly controversy. Their understanding, it seems to me, also suffers from the fact that we tend to take a rather simple and inarticulate contemporary notion of reason for granted and to project it back on ancient philosophers. We tend to think of reason primarily as a formal ability to reason, as an ability to process data with which reason is provided from the outside, and to which, perhaps, it is neutral, in such a way as to calculate what it is reasonable to assume given certain assumptions, or as to calculate what it is reasonable to opt for given certain preferences. This is a gross over-simplification of how we tend to think of reason, and correspondingly of rationality, but it may suffice as a foil against which we can see more clearly two crucial features which the notions of reason as conceived of by Socrates, Plato, Aristotle, or the Stoics, all share, however different they may be in other respects or even in the way they incorporate these features.

First, it is part of the notion of reason according to these philosophers that reason has its own needs and desires. The assumption is not merely that there are desires which we have, and only have, because we have certain beliefs; nor that there are desires which are in line with what we believe to be good, advantageous, or conducive to some preferred state; nor that there are desires which we have because we think that it is perfectly reasonable to have

them or even that we ought to have them. The assumption is that at least some desires, like the desire to know the truth or to obtain what is thought of as good, are desires of reason itself, rather than desires reason merely endorses. It may also be part of this aspect of the notion of reason that reason itself not only has desires, but that the objects of its desires to some extent are fixed, so that it becomes part of what it is to be endowed with reason to have certain preferences, at however high a level of generality these might be fixed.

The second feature which characterizes these notions of reason is that they involve the assumption that it is part of having reason, of being rational, to make certain assumptions about the world. Whereas we tend to think of reason as what allows us to form beliefs, ideally to form reasonable beliefs, perhaps even to acquire knowledge, to move from a completely uninformed state to a state of at least partial knowledge, the assumption here is that reason is at least in part constituted by a basic knowledge and understanding of things without which we could not even begin to do anything which is worthy of the name 'thinking' or 'reasoning', without which we cannot even begin to talk of 'reason' or 'rationality'.

It should be obvious that these assumptions make a crucial difference to how we conceive of reason and rationality, and hence I will consider them in greater detail, though their consideration within the limits of this introduction will have to be rather dogmatic and somewhat simplified. In this way, it is hoped, the issues will stand out more clearly.

To turn then first to the assumption of a desiderative or voluntative aspect of reason, it seems that the later emergence of the notion of the will has crucially affected modern conceptions of reason. However questionable the notion of the will may seem to us, it has had the effect that reason has come to be seen as having a merely cognitive function. Even when one abandoned the notion of the will, one did not restore to reason the desiderative aspect which had once been presumed to belong to it, though it had been this presumption which had led to the notion of the will in the first place. But, if we look at Socrates, Plato, Aristotle, and the Stoics, they all attribute a desiderative or voluntative function to reason itself.

It is notoriously difficult to say anything historically reliable

about Socrates. But Socrates in Plato's *Protagoras* is presented as suggesting a view which markedly differs from the view presented in later dialogues, for instance the *Republic*. Moreover, it is a view which down to small details bears so much resemblance to the view of the Stoics that, given certain further considerations, one is very much inclined to think that the Stoics, relying, among other things, on the *Protagoras*, took this to have been already Socrates' view which they set out to develop further. The view is that all emotion or desire is just belief of a certain kind, that it is invariably a matter of having some expectation that a good or an evil is coming one's way or of having the thought that a good or an evil has come one's way. Thus to be afraid is to think that an evil may overcome one (358d5–7). Hence Socrates can take the position that nobody acts against his beliefs (358b7, c7, d1), rather than the weaker position that nobody acts against his better knowledge, because there is nothing but beliefs which could motivate us. On this view, trivially, all desires, in being beliefs, are desires of reason.

Plato and Aristotle departed from this view by introducing desires which are irrational in the sense that they do not have their origin in reason, but in an irrational part, or irrational parts, of the soul which has a certain degree of autonomy. Thus what one feels or desires may be independent of what one believes. But, though Plato and Aristotle, unlike Socrates, are willing to grant this, they still hold on to the view that some desires are desires of reason. It is unclear whether this, upon further analysis, turns out to be more than the claim that there are thoughts or beliefs of such a kind that the mere having of the thought or belief on its own is a sufficient motive to act. In any case, that Plato holds the view that there are desires of reason is apparent from his argument for the division of the soul in *Republic* 4 (437b ff.). It is crucially based on the assumption that there are conflicting desires which we can only understand, Plato argues, if we assume that there are different parts of the soul, each with its own needs and interests, in which the conflicting desires have their origin. Thus Plato there not only explicitly speaks of desires of reason, he also is firmly committed to this view to the extent that the division of the soul is based on it. For it is based on the assumption that there may be a desire which conflicts with a desire of reason and hence must have its origin in a non-rational part of the soul. What Aristotle's position may be is a more complicated and more controversial matter. The traditional

interpretation, not surprisingly, has it that for Aristotle the motive force for our action has its source in a non-rational desire. But in general, and more specifically in the *Ethics*, it seems to me Aristotle is better understood on the assumption that he attributes motive force to reason itself and distinguishes between desires of reason and desires of the irrational part of the soul. Thus, when in the *Nicomachean Ethics* 1. 13 he tries to establish the basis for his distinctions between intellectual and moral virtue by distinguishing an irrational part of the soul from a rational part, he seems to rely for the latter distinction on an argument reminiscent of Plato's *Republic*. He refers, for instance, to the inclinations of the weak-willed which go in opposite directions (1102^{b}21). This is supposed to suggest that reason inclines us one way and that hence there must be something else which inclines us in the opposite direction. But that reason inclines us in a certain way is most naturally understood as meaning that this would be how we would act, unless something else intervened. Aristotle repeatedly, in a way again reminiscent of the *Republic*, distinguishes three kinds of desire (*orexis*) which might move us to do something, *boulesis*, *thymos*, and *epithymia* (cf. *de An.* 414^{b}2, 433^{a}23 ff.; *Rhet.* 1369^{a}1–7; *EE* 1223^{a}27; cf. *MM* 1187^{b}36–7). *Boulesis*, as opposed to *thymos* and *epithymia*, standardly is characterized as the desire characteristic of reason (for instance, *Rhet.* 1369^{a}1–3). It is a desire for the good which one does not have unless one takes something to be good (ibid. 3–4). The suggestion is not that one has a rational desire, a *boulesis*, if one has a non-rational desire for something, a *thymos* or an *epithymia*, and it also happens to be the case that one believes that what one non-rationally desires is good. For a non-rational desire is not inherently a desire for what is good, though it may be a desire for something which in fact is good. If then the desire of reason inherently is a desire for what is good, a *boulesis* cannot be a non-rational desire for something accompanied by the recognition, or at least the belief, that what is desired is good.

Things are uncontroversial when we turn to the Stoics. At least down to Posidonius (though I doubt whether even Posidonius constitutes an exception, as much as Galen in *De dogmatica Hippocratis· et Platonis* may want to make us believe this), the Stoics think that we are exclusively moved by reason, because the soul in a narrow sense is nothing but reason. More specifically they

think that we are impelled to act by giving assent to a certain kind of impression (*phantasia hormetike*, *Stob. Ecl.* 2. 86. 18), thus accepting a belief. All emotions or passions are such impulses and thus beliefs, fear, anger, pain, pleasure, desire. What distinguishes impulsive impressions from ordinary impressions, and impulses from ordinary beliefs, is that they are accompanied by a more radical change in the organism, e.g. in alerting the person or in readying the person to act. What distinguishes emotions or passions from natural impulses is that they involve ascribing the predicates 'good' or 'bad' to something which does not deserve it, because at best it is something to be preferred or to be dispreferred, like health or illness, life or death, pleasure or pain, good or ill repute, none of which, on the Stoic view, are good or bad. So all desire is a desire of reason in that it is a judgement, though one embedded in a highly complex state. Thus Socrates, Plato, Aristotle, and the Stoics assume that there are desires of reason; indeed Socrates and the Stoics seem to assume that all desires are desires of reason.

To turn to the second striking feature of these notions of reason, it seems to be assumed that it is constitutive of reason to have disposed already of certain beliefs, if not knowledge, about the world. Again it is difficult to form a view as to what Socrates might have thought. But the way he is presented in particular in Plato's earlier dialogues makes one think that he set out to show that people lacked knowledge concerning the questions which matter for the way we live our lives, by bringing them to contradict themselves on such a question they ideally would know the answer to. Moreover, one gets the impression that Socrates would 'refute' them, would make them contradict themselves, even if they initially had given the correct answer. Finally, one easily gets the impression that Socrates thinks that this kind of questioning might ultimately lead to knowledge, might ultimately put one into a position where no amount of questioning or arguing could force one rationally to contradict or even to abandon one's thesis. It is notoriously a puzzle how Socrates may think this. On the whole one is inclined to think that Socrates presupposes that, as far as the important questions are concerned, we, directly or indirectly, already do have the right answers, except that we are so confused that we also have the wrong answers, either directly or indirectly, in so far as we have beliefs which entail the wrong answer. This is what puts

Socrates into a position to refute anybody whatever he says. It is
not the case that Socrates' interlocutors would need to uncover
new facts to make themselves immune to Socratic refutation. They
know all they have to know to defend themselves. What does them
in is that in each case they, in their confusion, also hold incompat-
ible beliefs. So it is not the case that, to make themselves immune
to Socratic refutation, they have to acquire new beliefs. They rather
have to abandon all the false beliefs which are incompatible with
their true beliefs. And the question is how they manage to do this,
rather than ending up having discarded all their true beliefs incom-
patible with their false beliefs. The answer to this obviously is that
it is impossible to have just false beliefs. But an answer may also
be that, for one reason or another, not all true beliefs are eliminable.
One reason would be that merely speaking a language presupposes
certain true beliefs. We remember that Socrates in the *Meno*
(82b4) assures himself that the young slave does speak Greek. But
whatever Socrates' answer to the question is, he seems to presup-
pose that, at least in the domain he is concerned with, we all,
directly or at least indirectly, already do have the right answers to
the questions he poses and that the problem rather is due to the fact
that in our confusion we also hold incompatible false beliefs and
thus do not manage to hold on rationally to the true beliefs.

Plato, for instance in the *Phaedo* or in the *Timaeus*, suggests a
view which would explain the state Socrates seems to presuppose,
namely a state in which in some sense we confusedly already know
the right answers to the important questions. On this view, when
reason or the soul, which pre-exists, enters the body upon birth, it
does so already disposing of the knowledge of the Forms, though it
gets confused by its union with the body, a confusion it only re-
covers from to some degree mainly through sustained philosophi-
cal effort, recollecting the truths it had known before entering the
body. But it is only when it is released from the body, freed from
the disturbances involved in its union with the body, and free to
pursue its own concerns, rather than having to concern itself with
the needs of the body, or other concerns it only has made its own,
that it again has unhindered access to the truth. It is often thought
by commentators that reason or the soul is supposed to have ac-
quired this knowledge with which it enters into the body in its
disembodied state when it had unhindered access to the truth. This
is hardly plausible, unless we assume that the soul not only had pre-

existed eternally, but also eternally had been subjected to incarnation, and even then it seems questionable. If we just assume that the soul eternally exists prior to its embodiment, it is difficult to see why Plato should, or even how he could, assume that the soul only acquires this knowledge at a certain point prior to its entering the body. It would rather seem that reason has known these truths all along. And from there it is but a short step to the assumption that this knowledge is what constitutes reason in the first place. But in any case Plato suggests, and Aristotle takes him to assume (*APo.* B19. 99^{b}25 ff.), that the reason we are born with already possesses a fundamental knowledge of things, in terms of which, however confusedly, we are able to think about the world and understand things.

Both Aristotle and the Stoics reject this view of an innate knowledge. But, some appearances to the contrary notwithstanding, they do not reject it because they think that we are born with reason, but that this reason at birth is a *tabula rasa*. They reject it because they think that we are not born with knowledge. And since they assume that it is constitutive of reason to have a fundamental knowledge of things, they argue that reason only emerges in the course of our development precisely to the degree that we acquire this grasp on, and knowledge of, things which makes thinking and reasoning, properly speaking, possible in the first place. Aristotle quite explicitly says (*APo.* B19. 100^{a}2) that reason only comes into being as we come to acquire the appropriate concepts of things and thereby the knowledge of things and their principles which the mastery of these concepts embodies. And the Stoics, as is well known, claim that children are irrational animals which only turn into rational beings, as their irrational soul in its entirety is converted into reason, when they acquire the stock of common notions, naturally shared by all human beings, whose possession for the Stoics constitutes reason (Galen, *De dogm. Hipp. et Plat.* 5. 3. 1 = *SVF* ii. 841).

These, then, are two striking features of the notions of reason under consideration. In order to at least begin to understand these features something more must be said about the underlying conception of reason. Very roughly speaking, the conception would appear to be this: that it is the function of reason to determine the course of action we take, indeed the course of our life, by making us do what it wants us to do. To the extent that we can see that saying that reason wants us to do this or that is not just a manner of

speaking, but can be taken literally, we can see why one may talk of desires of reason. Moreover, it is clear that for reason to fulfil this function of guiding and determining our life well, it does have to have a certain knowledge or expertise.

As soon as we begin to look at the details, we notice, though, that this very general conception takes rather different forms with the different philosophers we are considering. Let us begin with Socrates. As is well known, Socrates is motivated by the consideration that we should put our mind to questions which really matter, namely questions relevant to the issue how we, as citizens and as individuals, should lead our lives; and that, if we put our mind to these matters with the same determination with which people have been trying to improve mining, shipbuilding, commerce, or theories about the world, we might make some real progress, whereas in the one area that really matters we remain strangely confused and unenlightened. We need to become clear and enlightened about how one lives a life.

Socrates also appears to have a conception of human beings in which it is not only important, but decisive, which beliefs one holds. He has a substantial conception of the soul, greatly emphasizing the need to be concerned with the well-being of one's soul rather than external matters. And he seems to think of the soul as a mind or a reason whose state and well-being is determined by its beliefs. He apparently takes the view that, however absurd, misguided, despicable, irrational actions may seem to be, they are invariably the result of a person's beliefs. People would not do what they do, however strange it may seem, unless for some specifiable reason they believed that it was a good thing to do. Hence he assumes that life, what people do, appearances to the contrary notwithstanding, is entirely guided by reason. Indeed, it seems to be the sole function of reason to do precisely this, to determine what we do and how we live. It is striking that in Plato's *Protagoras* (352b4) Socrates is made to characterize reason as 'leading' or 'guiding', using the very term (*hegemonikon*) with which later the Stoics will standardly refer to reason, and this precisely in a context in which Socrates is made to deny that there is anything which could overcome reason, that anybody ever acts against his beliefs. Now, in order to fulfil this function well it is obvious that reason ideally has to have the relevant knowledge. And hence it is this knowledge we should be concerned to acquire.

Plato and Aristotle in significant ways will depart from this view, whereas the Stoics will return to a more complex version of it. To begin with, whereas Socrates had thought that there was no need to gain theoretical knowledge about the world or reality and that perhaps it was even impossible to do so, since it was not the function of reason to gain such knowledge, both Plato and Aristotle disagreed. They thought that it was crucial not only for a good life, but also for an understanding of how to live well, to have an adequate general understanding of the world. Moreover, though they granted that it was a function of reason to determine the way we live, they, each in their own way, did not think that this was the sole function of reason. Plato rather seems to have thought that guiding us through our embodied life is a function which reason takes on, but that it, left to itself, is concerned to theoretically understand things quite generally. Aristotle's position is yet more complex in that he thinks that pursuing the concerns of reason itself is a crucial, if not the decisive, part of living well. Furthermore, though both Plato and Aristotle think that it is a function of reason to determine the way we live, they assume that reason may fail to do so. Given the supposed autonomy of desire or an irrational part of the soul, limited though it may be, there is no guarantee that reason determines what we do. The claim becomes that reason ought to determine what we do, and that it will do so when it functions well.

The Stoics depart from Socrates, and agree with Plato and Aristotle, in assuming that in order to live well, and to know how to live well, we do need a general understanding of the world and our place in it, but they return to the view that the sole function of knowledge, and hence also of this knowledge about the world, is to guide us in our life, and that the sole function of reason is to determine our life; they deny that there is an irrational part of the soul which could prevent reason from in fact determining our life, and they think that the quality of our life is entirely dependent on the quality of our reason. Hence the aim becomes to perfect reason so as to be able to lead a perfectly rational life, solely determined by an understanding of the good.

Against this background we can return to the question why reason should be thought to be at least in part constituted by knowledge. The question is most easily answered in the case of Stoicism. The Stoics have a view of the world as providentially

ordered in which human beings are constructed in such a way as to act for reasons rather than on impulse, and ideally for the right reasons. To put them into a position to survive by and large and ideally to act in the right way for the right reasons, nature constructs them in such a way as to gain a fundamental knowledge of the world which allows them to orientate themselves in the world, and which serves as a secure basis relying on which they can come to acquire the knowledge which will allow them to act in the right way for the right reasons. Nature achieves this by constructing human beings in such a way that they naturally and normally acquire notions, the so-called common notions, notions of perceptible features, but also of kinds of things, even of gods, notions which allow them to distinguish things adequately, which thus embody some knowledge about things, and notions in terms of which we can begin to think about things. That is to say, human beings could not even begin to think about things unless they had these notions and thus a fundamental knowledge about things. Thus to have reason involves having this knowledge.

Aristotle does not believe in a providentially ordered world, but he does think that organisms have to be understood teleologically, as naturally tending to achieve full development and perfection in their kind, unless they are handicapped or their development is thwarted. Since we naturally do have reason and since reason functions best, and serves its function best, if we do have the requisite knowledge, he assumes that we must be constructed in such a way as to be able to acquire the knowledge reason needs to function well. And he, too, thinks that he can explain this by assuming that there is a process which leads, on the basis of perception and memory, not only to our having concepts, but to our having concepts which are adequate to the way things essentially are, and which thus provide us with basic knowledge about things, but also with the ability to think and reason about things, properly speaking, instead of, for instance, just having impressions or even generalized impressions of things.

As to Plato, it would seem that he thinks that a state of knowledge is the natural state of reason, that what needs to be explained is not how it manages to acquire this knowledge, but rather how and why it lost this natural state, how and why the knowledge it somehow has is latent, inoperative.

Given such a conception of reason, it is clear that the corresponding conception of rationality will be highly complex, indeed that there will be significantly different conceptions of rationality corresponding to the different notions of reason under such a conception of reason. Rationality will, of course, involve adherence to the formal canons of reason. But this involves more than the mere formal ability to see what follows from what and what is incompatible with what. If one holds a belief which is incompatible with another belief, the explanation may be, not that one lacks a sufficiently developed sense for incompatibility, but that the belief one holds on to in spite of its incompatibility with some other belief is so firmly lodged in the way one is used to thinking and feeling about things that it is not easily displaced by having it pointed out to one that it is incompatible with a belief we are, and should be, unwilling to discard. It seems to be particularly important to keep this in mind in the case of extremely intellectualistic positions like that of Socrates or that of the Stoics, for whom even desires are beliefs of a kind. They certainly do not assume that ridding oneself, or others, of mistaken beliefs is just a matter of cogent argument. In particular the Stoics, and especially later Stoics, pay a great deal of attention to the treatment of irrational beliefs or propensities to believe. Part of the reason why it is important to keep this in mind is that it helps to understand why later the view becomes prominent that it may be our inordinate desires which stand in the way of our being able to see the truth. If such desires are mistaken beliefs, or even just if they involve mistaken beliefs in one way or another (for instance by rationalization), these beliefs stand in the way of our seeing the relevant truths, or at least of maintaining a firm grasp on them.

It is also, as we have said, a matter of rationality to have certain true beliefs and to be attached to the good, if not also to particular goods, for instance to knowledge of the truth, in particular the knowledge which is needed to live well. Now, if it is at least a function, if not the function, of reason to determine what we are going to do in the light of this knowledge, a whole series of problems arises over how the general knowledge reason disposes of helps it to determine what to do in the particular case. This problem is particularly acute, since ancient philosophers do not assume, or even reject the assumption, that there is an antecedently

given set of general truths, or rules, from which one could infer in a particular case what needs to be done in this case. This, again, is a large topic, and I will restrict myself here to two observations.

To do what is appropriate in a given situation requires a judgement. From the fact that there is no set of antecedent general assumptions which covers all possible cases in a way which does justice to all of them and which would allow us to deduce what is appropriate in the particular case at hand, it does not follow that the judgement must to some degree be arbitrary. It is a rational judgement, for instance, in that one can satisfactorily explain and justify it in any amount of detail. But the form of explanation here is not that of theoretical explanation. What Aristotle does is to distinguish two kinds of general knowledge which one needs in order to be perfectly rational and to live well: theoretical knowledge and practical knowledge. They are relevant for our life in different ways. The theoretical knowledge provides us, among other things, with a theoretical understanding of human beings, of what is distinctive about them, of how they function, even of what their end is and of the fact that they have to involve themselves in attaining this end. But there is also the practical knowledge, which does not serve the need to know and understand the truth, but which allows us to know and to do what needs to be done if we are to live well, if we are to attain the end. The bodies of knowledge are not isolated against each other. A better understanding of what needs to be done, attempts to do it, and reflection on these attempts and their results may lead to a better theoretical understanding, and vice versa. For this and other reasons theoretical wisdom and practical wisdom can only be had jointly. But the crucial point is that the rationality involved in coming, on the basis of one's practical knowledge, to a correct judgement in a particular case is formally rather different from the rationality involved in coming to understand a particular fact in virtue of one's theoretical knowledge. Hence there is a notion of practical rationality in Aristotle. What this, though, precisely amounts to is far from clear in Aristotle.

Another problem concerning rationality is raised by the Stoics. Claims sometimes made to the contrary notwithstanding, even the Stoic sage is not omniscient. He disposes of a general body of knowledge in virtue of which he has a general understanding of the world. But this knowledge does not put him into a position to know

what he is supposed to do in a concrete situation. It does not even allow him to know all the facts which are relevant to a decision in a particular situation. He, for instance, does not know whether the ship he considers embarking will reach its destination. The Stoic emphasis on intention, as opposed to the outcome or the consequences of an action, in part is due to the assumption that the outcome, as opposed to the intention, is a matter of fate and hence not only not, or at least not completely, under our control, but also, as a rule, unknown to us. Therefore, even the perfect rationality of the sage is a rationality which relies on experience and conjecture, and involves following what is reasonable or probable. It is crucially a perfect rationality under partial ignorance.

Needless to say, the implicit contrast between divine provident omniscience and human ignorance further encouraged questions, pursued at great length in late antiquity, about the compatibility between divine foreknowledge and fate, on the one hand, and human responsibility and freedom, on the other.

We have been considering the notion of reason as it is developed by Socrates, Plato, Aristotle, and the Stoics, a notion of reason according to which reason has the function to guide us in our lives, a function which it can exercise because it is a cognitive ability which provides us with the necessary knowledge about the world, but also the ability to recognize what is good and to move us towards it. In particular we have focused on two aspects of this notion: the assumption that it was constitutive of reason to have disposed already of a basic knowledge about the world, and the assumption that reason has its own desires. We have focused on this, because it is what gives this notion a very distinctive character, easily overlooked and not sufficiently taken into account. But in emphasizing these aspects we should not completely lose sight of other features connected with this notion.

Of these, three should at least be mentioned here. The first is that we are not captive to the way things strike us, let alone to first impressions, but in virtue of reason are able, to some extent at least, to discriminate between the true and the false. We are in part able to do this because we can reason and discriminate between valid and invalid argument. Thus we can see something to be true, if we see that it follows from something else we see to be true. But this ability can be perfected by an art and its exercise, namely dialectic or logic. Hence this art is also conceived of as a method to

arrive at the truth. A lot of philosophical effort in antiquity went into the development of this art. In particular Aristotle and his students, but then also the Stoics, developed sophisticated formal theories of argument. But it has to be remembered that they did so within the context of a method aimed at obtaining the truth, more specifically scientific knowledge, the knowledge requisite for a good life. This conception of logic or dialectic was so much tied to the conception of reason we have been considering that those who did not share such a notion of reason also rejected logic or dialectic, as it was then understood, as, for instance, the Epicureans, the Empiricists, the Methodists, and—in a different way, of course— both Academic and Pyrrhonean Sceptics. Second, the knowledge logic or dialectic aimed at was conceived of not primarily as a mere knowledge of facts, or a knowledge which could be extended to arrive at further and new facts, but as a knowledge which provided understanding, ideally complete understanding. After all, part of the reason why a good life was thought to require knowledge was that it was thought to require a certain understanding of the world and one's position in it, in order to be able to respond adequately to the situation one finds oneself in. But this demand in turn had the effect that one tried to conceive of reason in such a way that it would be able to meet this demand of providing understanding. This brings us to a third point. Reason even in its merely cognitive aspect was thought to involve a variety of abilities. One important distinction that was made, though in rather different ways, was the distinction between the intellect (*nous*) in a narrow sense, in virtue of which we intellectually instruct or grasp fundamental items or fundamental truths, and discursive reason, in virtue of which we grasp truths or derivative truths. And, given a distinction along these lines, it would be assumed that understanding ultimately depended on an intellectual grasp of fundamental items or fundamental truths. These remarks, I hope, suffice at least to indicate some of the major topics a good deal of reflection was devoted to down to the end of antiquity.

One thing which clearly emerges from our earlier considerations, even if one disagrees with some of the details, is that the history of the conception of the mind and of reason down to the Stoics can be understood, and presumably is best understood, in terms of a rather limited number of clearly identifiable philosophical considerations in response to what at least was assumed to be Socrates'

position. So it would seem that historically the decisive step was taken by Socrates in conceiving of human beings as being run by a mind or reason. And the evidence strongly suggests that Socrates did not take a notion of reason which had been there all along and assume, more or less plausibly, that reason as thus conceived, or as somewhat differently conceived, could fulfil the role he envisaged for it, but that he postulated an entity whose precise nature and function then was a matter of considerable philosophical debate, and that it was this entity which is the ancestor of our reason, rather than some ability or part of us which had been acknowledged all along.

But, however one thinks of the matter and prefers to describe it, one can hardly want to doubt that Socrates' assumption about the constitution of human beings constituted a crucial step in the history of the notion of the mind and that for this step he could rely on antecedents. For it seems clear enough that what Socrates actually did was to take a substantial notion of the soul and then try to understand the soul thus substantially conceived of as a mind or reason. By 'a substantial notion of the soul' I do not mean a notion according to which the soul is the kind of insubstantial shadow of a person presented at times in Homer, or some life-giving sub- stance which quickens the body, but a notion according to which the soul accounts not only for a human being's being alive, but for its doing whatever it does, and which perhaps, though not neces- sarily, is rather like what we would call the self. This was not a common conception, it seems, even in Socrates' time, but it was widespread and familiar enough under the influence of non- traditional religious beliefs, reflected, for instance, in Pythagoreanism. And it seems to have been such a substantial notion of the soul which Socrates took and interpreted as consisting in a mind or reason.

And, of course, there are also antecedents for his conception of reason and the importance he attaches to it. But to see this in perspective we might as well, at least briefly, return to earlier Greek philosophy, in fact to its beginnings. At the very origin of Greek philosophy lies the assumption that, instead of relying on traditional accounts of the world which turned out to conflict with each other and in some regards to stretch one's credulity unduly, one could come up with an account of one's own, if one put one's mind to it, an account which one could explain and defend and of

whose truth or plausibility one could persuade others, especially if one relied on observations familiar enough and considerations of a kind we also use in everyday life. The fact that one could do this must have come as a surprise, but it would have fitted the idea that traditional ways of going about things do not have to be accepted and that, if one puts one's mind to it, one may be able to think of better ways and to persuade others to adopt the new ways, in politics, in technology, and in other areas of culture. But, obviously, one can assume that people came to think along these lines without also having to assume that there was a change in the very character of thinking, a change from mythical thought to rational thought; and certainly without assuming that people now began to think about what it is to be rationally thinking about something, or even that they now discovered reason. One just has to assume that they came to think that a domain of discourse could be subjected to the kinds of considerations they had been used to all along and which had been applied with conspicuous success in some other areas of life.

Serious reason for reflection concerning the very nature of this thinking, or of thought in general, philosophers only came to have once this enterprise was well under way. This is not the place to consider this complex matter in detail. And perhaps for our purposes it will suffice to consider just one very striking case which would, and it seems did, give abundant reason for reflection. When we come to Parmenides we see that the confidence in the power of thought has become very strong. Strong it had to be, for otherwise Parmenides hardly would have set out to convince us that the world is quite radically different from what we think it is. Whereas we think that there is a colourful, infinitely varied, ever shifting and changing manifold of things, in truth there is just one thing which never came to be, never will pass away, which does not move or change, is entirely homogeneous, and has none of the features we are accustomed to attribute to things. Indeed, Parmenides seems to be awed by the power of thought which would yield such a conclusion. For he at least presents it as a revelation. That in this he follows a literary tradition should not be taken to mean that Parmenides is merely following a literary convention in presenting his thought as a revelation. It is no wonder that he has to work very hard to persuade us given his conclusion. He obviously tries to find an argument which, given that the premiss is indubitably true

(namely that if we take something to find out what can be said about it, the first thing we have to assume is that it is something which is), will force us to grant the conclusion on pain of appearing singularly dense or dishonest or unfair. It is a closely knit argument which for the first time reveals a sense for the logical force of argument which will be even more evident in Zeno, though, of course, neither Parmenides nor Zeno are able to conceptualize the matter in this way. But there is an awareness that the Way of Truth, the method to reach the truth, involves that one submits one's thinking to certain canons which then later dialectic or logic will be thought to codify. Aristotle at times (cf. *Sophist*, frag. 1, Ross) suggests that Zeno was the founder of dialectic.

Parmenides does not think, as we might suspect he does, especially if we also think of Heraclitus, that there is some mysterious ability in us to attain such surprising truth, if we only would avail ourselves of it. It is not in this sense that he discovers reason. He rather thinks that ordinary mortals do not manage to think straight by following the canons one has to respect if one wants to attain the truth. They are ready, for instance, to contradict themselves from one sentence to the next. He tells us in *The Way of Opinion* what the world looks like if one relaxes the canons of thought in a minimal way. Part of this picture (cf. frag. B16) is an intellect (*nous*) which obviously is supposed to explain thought and cognition as of like by like. But not only is this not Parmenides' own view of reality, it is a picture which is extremely primitive and schematic in its conception of cognition; moreover, it fails to address one obvious problem Parmenides' theory raises, and it does not form part of a theoretical view of how human beings work and what roles cognition and thought play in this. The obvious problem it does not address is this: how does it come about that, if reality is the way Parmenides describes it, we nevertheless perceive it the way we do? It was Democritus who took up this problem, and, in taking it up, had to face the question of the relative roles of thought and perception in cognition. He thus, instead of having a vague and indefinite notion of some cognitive power of thought, came nearer to having a notion of reason by trying to determine more precisely the relative role of thought in cognition. Unfortunately Democritus' thought is preserved highly selectively, and there is not much evidence concerning his views on the soul. But given that he thought of philosophy as providing therapy for the afflic-

tions of the soul, it would seem that he, too, had a substantive notion of the soul integrating perception, thought, belief, and desire in some systematic way. And so we, finally, come at least fairly close to a notion of reason, as we find it from Socrates onwards.

Thus it seems that a clear acknowledgement of a distinct cognitive ability which at the same time, at least unless there is a misfunction, determines what we do, seems to be missing in pre-Socratic thought, though we find antecedents of it. Indeed, Aristotle repeatedly claimed (*de An.* 404ᵃ27–ᵇ6, 427ᵃ21 ff.; *Metaph.* Γ 1009ᵇ12 ff.) that earlier thinkers had not clearly recognized reason as a distinct cognitive ability, to be distinguished from sense and perception.

When reason was given its decisive role, there was at least a strong current of optimistic thought that if we just put our mind to it we would be able to acquire the knowledge needed to live well. Some generations of philosophical endeavour were enough to dampen this optimism. The endeavours of Speusippus and Xenocrates and their followers, for instance, could hardly be said to have secured firm knowledge, or a good life, for those who pursued this knowledge. Philosophers radically disagreed with each other, and they did not seem to find a way to resolve their differences.

One reaction to this situation was scepticism. I will not here go into the details of the sceptical movement, but just mention some of its consequences. Scepticism in particular undermined the confidence that reason ever would be able to provide us with certain knowledge of the general truths in the light of which we would be able to live wisely and well. It did this so effectively that even in later antiquity, when scepticism no longer was perceived as an important and live issue, there was some uncertainty about the status of claims to philosophical knowledge. But radical scepticism not only questioned whether philosophical claims were known or even could be known, to be true, it even questioned whether we had any reason to believe them to be true. This suggested that perhaps we can live well without any beliefs concerning the matters discussed by philosophers, though supposedly knowledge in these matters is at least necessary, if not sufficient, for a good life. It even suggested that the wisest and most rational thing to do was to have no beliefs concerning such matters, if one wanted to live well.

Needless to say, one major reaction to this was to claim that a life without such beliefs lacked aim and orientation and could not possibly succeed, and that hence one just had to adopt a position which, upon due consideration, seemed plausible to one, in order to be able to live rationally. This view might be strengthened by the view that the position which one chose was not just a matter of subjective plausibility, but that the diligence with which one went about choosing it lent it some cognitive status, though never enough to turn it into a matter of certain knowledge. But it also easily turned into the view that it ultimately was just a matter of faith which position one adopted on these fundamental questions, that ultimately one just had to make a choice between the different options on offer.

Thus the status of assumptions which in later antiquity were more and more regarded as fundamental and decisive for the way one lived, for instance concerning the existence of God, divine providence, the nature and the fate of the soul, was left rather dubious.

Hence the question arose whether our inability to see the truth clearly on these vital issues was just a matter of an inherent weakness of reason or whether it rather was a matter of the deplorable state our reason happened to be in.

Platonists here had a problem of their own. Ever since they actually had begun to seriously study Plato's dialogues again, they had to deal with the fact that according to Plato's *Republic* (6. 509b) the Idea of the Good, the source of all being and all intelligibility, itself is beyond being and intelligibility. Given that they identified the Good with the One of the first hypothesis of Plato's *Parmenides*, and both the Good and the One with God, or at least God the Father, they seemed to be committed to the view that God, the first principle, is beyond intellectual cognition in the best of circumstances. Even if we were to be able to restore the intellect to its pristine clarity and power, it would not be able to see more than the plurality of ideas and thus eternal truth, but not the source of this truth. A great deal of philosophical effort was spent to consider various philosophical and non-philosophical ways to bridge the gulf. I will not pursue them here except to mention that one sometimes, for instance in the *Hermetica* (e.g. 11. 21), finds the suggestion that this cognitive step requires divine help, or grace.

But, not surprisingly, Platonists also thought that our difficulty in reaching clarity in philosophical matters, and in overcoming the disagreements among philosophers, was due to the deplorable state of reason in its union with the body. What was needed, it was thought, was a detachment from earthly matters, a purification of the soul, and thus a liberation of the intellect from the distortions in its thinking brought about by its improper attachment to worldly things, to allow it to see the truth. What perhaps is surprising is that we find this kind of thinking and a tendency towards asceticism also in Stoics, for instance in Attalus and in Chaeremon in the first century AD.

In both Stoics and Platonists we also find another diagnosis for the corruption of reason. It is thought that society is corrupt, that the Hellenistic age was a disaster, that we should return to the Ancients, who bear testimony of the wisdom of an incorrupt age, which testimony, though, needs to be interpreted. This return to the Ancients, not only Greek, but also barbarian, has many facets and forms. It involves the idea that we in our corrupt state will have access to the truth only by relying on some authority or authorities to guide us in the search for the truth. It is crucial that it also tends to be assumed that once we have found the truth, we see and understand it on our own and for this no longer depend on authority. Thus Plato, in particular of course by Platonists, is regarded as an authority, as a repository of the true philosophy. And philosophical work is regarded, for instance by Plotinus, as a matter of recovering the philosophical insight which Plato had had by interpreting the dialogues. But Platonist philosophers also will not refuse to seek guidance from what they take to be divinely inspired texts like the Orphic poems or the Chaldean Oracles. We find the same attitude in Christian writers like Clement, Origen, and Augustine, in particular the early Augustine, except that for them, of course, it will be Scripture which constitutes the authoritative text. But they, too, believe that, given the guidance of Scripture, we can attain a rational understanding of the truth which is independent of authority. One has to begin by believing to reach understanding, but the understanding once reached no longer involves a reference to authority. If they think that to attain such an understanding we need divine help, they do not differ from a pagan who might begin his lecture with an invocation of God.

If we follow the history of reason from Socrates to late antiquity,

we may think that what started out as a somewhat optimistic attempt at a rational approach to life, private and public, had turned into an invitation to irrationality. But we should not forget that a late ancient reader of Plato's dialogues and letters would find his own view already adumbrated there.

Since antiquity the notion of reason has undergone enormous changes. But some of the most important of them were already set in antiquity. One major factor in the development of these changes is Christianity. It is standard Christian doctrine that human beings are born with a newly created rational soul. Augustine even at the end of his life had not been able to decide between a number of different views about the origin of the soul, including the view that the soul pre-existed, as long as it was clear that it had been created out of nothing. But the view of a pre-existing soul came to be so closely associated with Origenism that it was generally rejected. Now, a newly existing rational soul is not the kind of soul which brings with it the knowledge it had in its previous existence. It also is not a soul which develops into a mind or reason by developing the knowledge which is constitutive of reason. Nor is it a soul which develops into a rational soul as it develops the concepts and the knowledge which allow it to grasp and understand things. It is, already to begin with, a soul with reason, but no knowledge. There are, of course, various ways to provide it with knowledge, if this, on other grounds, is deemed necessary. But the simple necessary link between having reason and being endowed with a certain knowledge is broken. Moreover, this rational soul is supposed to be endowed with a free will. This is thought to be part of what it is to be rational, thus revealing the continued assumption of an intrinsic link between reason and action. Already Origen, for instance, claimed this to be the teaching of the Church (*de Princ.* 3. 1. 1), though it becomes clear from his own remarks that this in his day was not yet so, if we understand 'teaching' in a technical sense. To say that a rational soul is endowed with a free will is to say that what a person does, though it very much depends on what the person believes and desires, does not necessarily depend entirely on the person's beliefs and desires. It also depends on the person's will. Given a certain situation, it is not impossible that a person with certain beliefs and certain desires should act otherwise than the person actually does, given the very same desires and beliefs. This notion of the will, at least on the face of it, leaves very little room

for the assumption that reason has its own desires, which might conflict with our ordinary desires. It now seems to be the will which, if anything, is in conflict with our desires. Thus, given the notion of a non-pre-existent rational soul endowed with a free will, we would expect the notion of reason to develop in the direction of a conception according to which reason is purely cognitive. Thus one can see how, under the influence of Christianity, a notion of reason would tend not to be characterized by the two distinctive features of earlier Greek notions of reason: reason would not be constituted at least in part by knowledge about the world, and it would not have desires of its own, its desiderative aspect being absorbed into a doctrine of the will.

But the notion of the will, or even of the free will, is not an alien intrusion into ancient thought, and I want, in conclusion, to make some remarks about its origin. To understand it, we have to go back to the Stoic conception of reason. As we saw, the Stoics assume that what we do, our whole life, including the way we think and feel about things, is entirely a matter of which impressions reason gives assent to. If reason is weak it gives assent to impressions which it should not give assent to because they are false or because, though they are true, it is rash to give assent to them, as they are not sufficiently clear to warrant assent. Even when it gives assent to impressions which are true in such an evident manner that it is not rash to assent to them, its assent might be so weak that it cannot be counted on to be able to hold on to its grasp of things. It might not be firm and constant in its beliefs and thus in its desires. This weakness, as we have seen, though a weakness of reason, is not just a matter of intellectual weakness as we understand it, a failure, for instance, to grasp logical relations. Or rather, even when it is that, it is that in part because one is attached to things in an irrational way which makes it difficult or impossible to consider the impressions in which they are represented in a rational way. Hence strength or weakness of reason, though a purely intellectual matter in the sense that it is just a matter of espousing or not espousing certain beliefs as true, also very much depends on one's emotional attachments.

So which impressions one gives assent to depends on one's beliefs in general, but also in particular on those beliefs which are desires. Hence reason has a general disposition to assent to certain kinds of impressions and thus particularly to certain kinds of impul-

sive impressions, that is impressions assent to which constitutes impulse or the desire to do something, indeed the decision to do something. Epictetus calls this general disposition of reason *prohairesis* (which in Latin is rendered by *voluntas* or *arbitrium*). There is no indication in Epictetus that the will is a separate part or faculty of reason. It is just the general disposition of reason to make certain kinds of choices rather than others. Epictetus enjoins us to be concerned with the kind of will we have. Thus one can desire or want that one's will be different. For it may, as we still say, be a good will or a bad will. For the will to be good is for reason to be firmly attached to the good, according to the Stoics the divinely imposed rational order of things, to see reliably what is good and to decide to do it, motivated by the desire for the good. But reason may also be attached to things which are indifferent, as if they were good, and hence choose and act accordingly. Epictetus also, like earlier Stoics, speaks of our freedom. If we allow ourselves to be attached to external things as if they were good, we enslave ourselves to them, we see things and have impulses in a way which is irrational. We give external things power over us and let them compel us to think and act in a way we would not, if we thought and acted rationally. We allow our assents to be compulsive. Hence in this case we are not free. This view Epictetus and other Stoics hold at the same time as they maintain that everything is determined by fate. The circumstances are determined, and so is our reason and its disposition, and the two together necessitate our assent. But since it is our will which crucially determines whether or not we give assent in given circumstances, we are held responsible, being the sort of people who in these circumstances do give assent, when we should not, as other people do not.

Platonists and Peripatetic philosophers, like Alexander of Aphrodisias, deny fate. Platonist philosophers, for instance, deny fate because they think that the intellect is not part of nature and thus not subject to the causal chain of nature, unless it attaches itself to things like the body which are subject to determination. Thus in its pre-existence, prior to its embodiment, it may well not have been subject to determination at all, if it did not feel any attachment to physical things and thus would not be affected by their fate. But, when it is embodied and does feel attached to the body and external things, it may get so totally absorbed by these attachments as to lose its autonomy altogether, so as to let its

desires be completely determined by these attachments. Now the pre-existing intellect in its 'healthy' state has beliefs and desires, and thus a will, which are not causally determined. It has these beliefs and desires, and thus this will, for reasons. The question is whether its having these reasons not only explains, but also determines, its beliefs and desires. The question is whether it is possible to have all the right beliefs and the right desires for the right reasons and yet, in a certain situation, to give assent to an impression which it is not good to assent to. The Stoic answer clearly is 'no'. We get the notion of a free will in our sense, if the answer is affirmative. And some Platonists clearly believe that an affirmative answer may explain the fall of the intellect or the soul and its embodiment. In their wake Augustine believes that it is precisely this which happened to Adam in Paradise. The will is free to give assent to the wrong impression, even when the mind has all the right desires and beliefs. It might do so, if its attachment to the good is not so strong as to rule this out. Thus, what was the attachment of reason to the good now becomes the attachment of the will to the good which may be firmer or weaker. And so what one does is no longer just a matter of one's beliefs and desires.

Needless to say, this view that it is all ultimately a matter of the love of the good or of God, or in any case of the will, should not be seen as in itself promoting irrationality, but it cannot be emphasized strongly enough how much it affects the conception of reason and rationality and how much it undermines the spirit with which earlier Greek philosophers had set up reason as the arbiter of our life and had sung its praise. But by the time we come to the end of Antiquity, it is hardly surprising that people would have come to take a rather dim and modest view of the ability at least of their reason to govern their life, both as individuals and as a community.

The Philosophical Economy of Plato's Psychology: Rationality and Common Concepts in the *Timaeus*

DOROTHEA FREDE

COMMON CONCEPTS AND DIALECTIC

It is and will remain a sound maxim that a Platonic dialogue should not be interpreted in terms of what Plato says elsewhere. Needless to say, however, this maxim is violated by the exegete all the time. And it is all the more tempting to sin against it if Plato introduces seemingly crucial concepts at crucial points in a text, but then leaves it to the reader to fathom the depth of what is merely hinted at in his all too brief remarks. Especially the recurrence of these crucial concepts in different dialogues provokes the attempt to construe a pattern of explanation into which the isolated remarks can be fitted like the pieces of a puzzle. Such constructions cannot be more than conjectural; there is no guarantee that Plato meant us to fit his scattered remarks together to form a neat picture, no matter how 'pregnant' his terminology may seem. But the fact that this is often our only resort is my justification for reading a crucial passage in the *Timaeus* in the light of the results of a line of interpretation that I have developed in an article on the common concepts in the *Theaetetus*.[1] Since the limitations of that article did not allow a further pursuit of this line I am glad for the opportunity to resume the discussion here. I hope that what I have to say on the *Timaeus* can largely stand on its own, but some references to the

[1] 'The Soul's Silent Dialogue: A Non-Aporetic Reading of the *Theaetetus*', *Proceedings of the Cambridge Philological Society*, 215 (1989), 20–49. For a more extensive discussion on similar lines, cf. Allan Silverman, 'Plato on Perception and "Commons"', *Classical Quarterly*, 40 (1990), 148–75.

Theaetetus article will be necessary, at least by way of a summary as
my starting-point for this chapter.

The introduction of the common concepts (κοινά) as the 'soul's
own business' concludes the argument against perception as know-
ledge in the *Theaetetus* (184b–186e).

> You mean being and not-being, likeness and unlikeness, same and differ-
> ent; also one, and any number applied to them. And obviously too your
> question is about odd and even, and all that is involved with these
> attributes; and you want to know through what bodily instruments we
> perceive all these with the soul.[2]   (185d)

Concerning the 'soul's own business' as distinct from sense-percep-
tion, Socrates then adds the following clarification:

> 'Wouldn't you say that it is through touch that the soul perceives the
> hardness of what is hard, and similarly the softness of what is soft?'—
> 'Yes.'—'But as regards their being—the fact that they are—their opposi-
> tion to one another, and the being again, of this opposition, the matter is
> different. Here the soul itself attempts to reach a decision for us by rising
> to compare them with one another.'—'Yes, undoubtedly.'—'And thus
> there are some things which all creatures, men and animals alike, are
> naturally able to perceive as soon as they are born; I mean, the experiences
> which reach the soul through the body. But calculations regarding their
> being and their advantageousness come, when they do, only as the result of
> a long and arduous development, involving a good deal of trouble and
> education.'

In my interpretation of this passage I suggested that the intro-
duction of the common concepts, if properly understood, contains
Plato's solution to the problem of knowledge in the *Theaetetus*.
Such a 'proper understanding', which would be the end-point of the
'arduous development' alluded to in the text, is not turned to any
good use in the dialogue itself, however, because Theaetetus does
not pick up the hint about what the soul's own business ought to be,
namely the appropriate dealing with the common concepts.[3] What
would amount to an 'appropriate handling' of the common con-

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[2] *The 'Theaetetus' of Plato*, trans. M. J. Levett, rev. M. Burnyeat (Indianapolis,
1990).

[3] There can be a weak reading or a strong reading of this passage. The weak
reading assumes that it concerns all acts of judgement, including such simple judge-
ments as 'This is red'. The strong reading presupposes that what is achieved through
'a good deal of trouble and education (*paideia*)' is the full command over the
common concepts and their application. I plead for an inclusive reading, but for a

cepts? There are several levels on which the common concepts can be applied. A naïve, unreflective, and implicit application of 'sameness' and 'difference', 'being', etc. takes place in all forma-tions of beliefs.[4] Possible mistakes on this level are discussed by Socrates in the puzzles about false beliefs and in the similes of the Wax Block and the Aviary. Such unreflective application of the common concepts, even if it should happen to be correct, can never be 'accountable', however, and hence Theaetetus does not manage to distinguish between true belief and knowledge. What Plato means by knowledge is nevertheless at least indicated in the *Theaetetus*, when he refers to the expert's discipline, particularly to the way in which the writing-master's or the musician's com-mand over his subject differs from the schoolboy's (207b).[5] The expert applies the common concepts systematically and reflex-ively: the expert 'grammarian' or musician knows all the elements of his field, i.e. he has an account for their differences and interconnections.

The discrepancy between the expert's explicit systematic account and the lay-person's implicit familiarity with the 'difference' is not worked out with sufficient clarity, and so the dialogue ends, to all appearances, in an *aporia*. If Theaetetus had seen the implications of the reference to real expertise, he would have given up his attempt to upgrade one particular 'piece of information', a true belief, to a piece of knowledge with the help of a 'distinguishing mark'. No such upgrading is possible; what would be needed is rather the integration of the belief in a network of understanding of the whole field. Theaetetus, not surprisingly—given his youth and inexperi-ence—has missed the point that on the same kinds of objects, even

double meaning that refers to both, i.e. that the formation of both simple opinions and reflective judgements is to be regarded as 'the business of the soul itself'. But only the proper *reflective* dealing with the *koina* in the strong sense would give us knowledge, rather than true opinion.

[4] In an article 'Sense-Experience and the Argument for Recollection in Plato's *Phaedo*', *Phronesis*, 36 (1991), 27–60, J. T. Bedu-Addo has pointed out that the crucial difference between ordinary employment of common concepts and the philosopher's explicit use is already an important feature of Plato's theory of recol-lection in the *Phaedo*. The employment of sameness, similarity, and difference is limited there to the distinction between a Form and its sensible image, however.

[5] The difference is, of course, not worked out in the *Theaetetus*, except for the contrast between the novice's shaky command in giving a 'complete enumeration' in spelling a word and the proper understanding of the expert (λέγειν γραμματικῶς, 207b3).

such lowly objects as the alphabet, there can be two kinds of 'silent dialogues of the soul with itself' (190a). There is the ordinary, more or less humdrum, formation of beliefs of the soul when she 'rushes to her conclusions'. And there is the systematic account worked out by the knower. 'A belief' can therefore never simply be turned into 'a piece of knowledge' by tacking on an 'account' to it; this seems to be the upshot of the final discussion (208a ff.). A belief would have to become embedded in a systematic account of the whole field which makes up the expert's understanding, i.e. it would have to form part of a different kind of dialogue.

The advantage of this interpretation is that it does not saddle Plato with the grave omission of any hint at a solution to the dialogue's problem, an omission that Cornford and others have thought could only be filled by a resort to the theory of the Forms. If that were the message of the *Theaetetus*, Plato would have indeed seriously misled us in its last part by focusing the discussion on objects of sense perception at all.[6] If my interpretation is right, however, belief–opinion and knowledge need not have a strictly separate field of application. They can be concerned with the same field, as in the case of the writing-master and the musician and their disciples: the objects, the sounds and letters, are in a way the same for the novice and the expert; the crucial difference lies in the manner of application of the common concepts.[7]

[6] There is no need to stir up the hornets' nest of 'revisionism' here. *Pace* Cherniss (*The Relation of the 'Timaeus' to Plato's Later Dialogues* (London, 1965), 339–78), the common concepts *are* here applied to sensible qualities. The mind applies the common concepts to reflect on the *ousia*, sameness, and difference of the hard and the soft. In the *Theaetetus* the sensory experience is not 'acting merely as a stimulus to this activity of the soul' (ibid. 357 n. 1). What a complicated story the soul's dialogue on the hard and the soft must be becomes clear only in the *Timaeus*, however. The rational account Plato gives there of hardness and softness is clearly a causal explanation of the underpinnings of their sensory impressions (62b–c). Is there a Form of the hard and the soft? There is, if one can so regard his definition as 'that to which the flesh yields'. It is, after all, a concept that the mind conceives and that can be taught, and it is definitely distinct from the sensory impression of hardness itself, which is indeed *alogos*.

[7] Besides the ordinary level of handling the *koina* and the higher level of the expert's systematic application, there might be a third level implied in the introduction of the *koina* as the soul's own business, which is learned only through 'much labour and education', in the *Theaetetus*. The third level would be the *philosopher's* explicit account of the common concepts taken by themselves, in the way Plato suggests in the *Sophist*, in his discussion of the *megista gene* and the 'interweaving' of the Forms.

What supported my confidence in the hypothesis that Plato envisaged the distinction of these two levels of dealing with the common concepts as a solution for the problem of knowledge in the *Theaetetus* is the fact that the depiction of the 'soul's own business' looks like an abridged version of the method of dialectic that Plato introduces in the *Philebus*. I am referring to the procedure ('the gift of the gods') that Socrates recommends there to overcome the problem of the 'one and many', with the aid of *peras* and *apeiron* (16c–19b). As Socrates claims there, anyone who is ever supposed to be any good in any field ought to work out the generic unity of his field, to divide the genus into the subgenera, then to proceed to the *infimae species* until he can finally 'let it go into the unlimited' when he comes to the indefinitely many possible instantiations. In all these endeavours it is crucial how one applies the common concepts, above all being, sameness, difference, unity, plurality. Without such an appropriate procedure there will be no way of establishing the genus, nor of ascertaining that all the different subdivisions have been captured. In each case the scientist has to reflect on the sameness and difference, unity and plurality, within his field; he will have to find out in what sense different species have the same overall genus, and he will have to find out how, precisely, they differ. 'Unless we are able to do this for every kind of unity, similarity, sameness, and their opposites, in the way that our recent discussion has indicated, none of us will ever turn out to be any good at anything (19b).'[8] To speak in conformity with the prescription of the *Theaetetus* passage quoted above: they have to decide 'their opposition' and 'the being of their opposition'. The attraction of tying together the concept of knowledge that I advocate for the *Theaetetus* with the one presupposed by the method of the *Philebus* is not only that both employ the same disciplines as paradigms, namely music and writing, but in addition that we seem to have in both cases one world as the subject-matter, the world of common experience, and two ways of dealing with it, which distin-

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[8] This is the only passage in which sameness and difference are mentioned explicitly in the *Philebus*. Plato concentrates more on *peras*, *apeiron*, and 'number' in this dialogue. But sameness and difference are clearly needed for the divisions. Socrates' description of this method strongly recalls the explanations of scientific procedure in the *Phaedrus* (256c ff.); the ability to perform such distinctions is also presupposed for the statesman in *Laws* 965c–966b. We will refrain here, however, from any more comprehensive discussion of dialectical method as such.

guish the expert and the amateur; they do not move in different
worlds.[9]

TWO 'LEVELS' IN THE *TIMAEUS*

How well would such a distinction between 'different dialogues of
the soul'—instead of separate ontological realms—fare as a work-
ing hypothesis for the constitution of the 'world soul' and its opera-
tions in the *Timaeus*? At first sight the auspices do not seem
favourable to my enterprise at all. If any of Plato's late dialogues
would seem to contain a clear commitment to a two-world theory
with strictly separate objects for knowledge and opinion, then it
must be the *Timaeus*. A brief reminder will suffice to show this.
The generated world is a 'temporal' copy of its ideal model
(*paradeigma*), the eternal world. The former always becomes and
never is, the latter is always and never becomes (27d5 ff.). The
corporeal world is, as in Plato's earlier days, described as visible,
'grasped by opinion with sense perception' (δόξῃ μετ' αἰσθήσεως),
and contrasted with the invisible world that is accessible only to the
mind (νοήσει μετὰ λόγου, 28a). Plato even goes as far as to recom-
mend a different language to describe both worlds (29b, 38b). And
his commitment to transcendent, eternal, separate Forms seems to
be an integral part of this two-world theory. Does he not speak of
the 'really real animal', the παντελὴς ζῷον (31b1; cf. νοητὸν ζῷον,
30c7; ὃ ἔστιν ζῷον, 39e8), of which the created animals are only
copies? I do not have to pile up more evidence against myself; the
opening pages of Timaeus' 'likely story' are full of it, and the need
to separate the sensible and the intelligible is emphatically re-
peated later (48e–53). So what could be gained from an attempt to
establish a connection between the epistemology of the *Theaetetus*
and the *Philebus* (provided that I am right about them in the first
place) that could throw any light on the ontology and epistemology
in the *Timaeus*? It might seem I had better leave this dialogue well
alone, since the *Timaeus* is a hard thing to explain for anyone who
suggests an interpretation that even remotely smacks of 'revision-

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[9] This is not contradicted but rather confirmed by Plato's distinction between
pure and impure science later in the *Philebus* (55c ff.), but to discuss this issue would
be ἄλλης πραγματείας.

ist' tendencies in the interpretation of Plato's metaphysics and dialectical method.

I will not try to 'talk away' the evidence for a separation of being and becoming in the *Timaeus*, nor will I try to talk away the paradigm-function of at least some of the Forms. My enterprise is a much more modest one: it focuses rather on the question how Plato's psychology, especially in the constitution of the world-soul, permits the soul to deal with both realms. So we can see how 'separate' the two actually are in that encounter, whether the soul's operations are really worlds apart or only levels apart, as I suggested for the expert's knowledge in the *Theaetetus* and in the *Philebus*. This will, I hope, in the end also shed some light on our evaluation of the mythical language of a created world and an uncreated eternal model in the mind of a divine demiurge.[10]

The common concepts (although they are not called by this name in the *Timaeus*) play a role of eminent importance in Plato's account of the world-soul. Not only does the soul have and use them, the soul is made of them, and its activities are defined in terms of them. The composition of the soul out of these abstract elements is introduced rather abruptly. Nothing prepares us for this strange mixture, which supposedly makes up the 'mistress' over the body. It is a mixture that combines the Forms of Being, Sameness, and Difference themselves with their earthly counterparts, the being, sameness, and difference as they apply to the objects of the world of change (35a ff.):

He made her out of the following elements and in this way. From the being which is indivisible and unchangeable, and from that kind of being which is distributed among bodies, he compounded a third and intermediate kind of being (ἐν μέσῳ συνεκεράσατο οὐσίας εἶδος). He did likewise with the same

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[10] For time's sake I will leave out all mention of the need for a reinterpretation in terms of 'three natures', in 50d–52e, the *matrix*, besides the Forms and the sensible objects. The modesty of my enterprise also forbids me to discuss Luc Brisson's scholarly treatment of the same topic in his monograph *Le Même et l'autre dans la structure ontologique du 'Timée' de Platon* (Paris, 1974). While he gives a much more extensive depiction of the function of the *koina* in the *Timaeus*, he does not much discuss the practical application of the theory as this chapter does. What somewhat puzzles me in his interpretation is his translation of *ousia* as 'substance' (p. 18 and *passim*) and its ontological consequences (cf. esp. 347 ff.). But to pursue this question would lead me too far afield.

and the different,[11] blending together the indivisible kind of each with that
which is portioned out in bodies. Then, taking the three new elements, he
mingled them all into one form, compressing by force the reluctant and
unsociable nature of the different into union with the same.

What are we to make of this strange composition of the world-soul,
which will also be the composition of the human soul, albeit in a
less pure form (41d)? The overall intention is clear: the soul is
obviously to participate in both worlds, in the eternal world of the
intelligible and in the contingent, visible one. But why make a
mixture out of the two, why not leave them both, uncontaminated,
side by side, as one would expect if reason and sensations are to be
kept apart? And how are they supposed to form a 'third and
intermediate kind of being', how can these two disparate com-
posites blend together? Timaeus gives us no explanation. In what
follows he continues the rather cryptic discussion of the world-
soul's composition: the mixture is 'divided' in a proportion so as to
produce a series of harmonious numbers; and as he finally decrees,
it forms different kinds of circles, the circles that underlie the
cosmic order. We are not told what, precisely, this division amounts
to, what to make of its semi-mythical language, why and how all
those harmonious ratios are supposedly 'imprinted' on the 'bands'
that form the soul. It cannot be that Plato merely fulfilled the
demands of astronomy, for not all of the proportions are actually
made use of to account for the motions, speeds, or distances of the
heavenly bodies (cf. 35b–36b). Obviously the soul itself is to pos-
sess a mathematically harmonious structure, but this difficult
aspect of the structure of the world-soul must be left largely aside
here.

We will confine ourselves to the question why the soul contains
a mixture of the eternal and the temporal, and how these two
disparate elements can be mixed. The question why the soul has
this composition is the easier one to answer, so let us turn to it first.
That the world-soul contains only a mixture, and not the common
concepts in their purity, must be due to its function. In spite of its
divinity,[12] the world-soul (whether it is created in a literal sense or

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[11] Restoring αὖ πέρι, 35a4, with Cornford (*Plato's Cosmology* (London, 1937), 60–
2). My translations are to some extent inspired by Jowett, because I could not hope
to imitate Plato's gravity in English.

[12] Cf. Hackforth on the 'divinity' of the world-soul: 'The problem is complicated
at the outset by Plato's very wide application of θεός. As M. Diès says ("Tout est

not) is a kind of physical entity that exists in time and has extension. Because the soul is an extended thing (it is stretched all through the world's body), it cannot be a mere metaphor when Plato speaks of its consistence of 'strips of soul-stuff', which can be divided in mathematical ratios and form circles moving in different directions with different speeds.[13] Even if the soul is not literally made of 'stuff', it must have extension and motion, otherwise it could not function as the self-moving motor of the visible world, its prime function in Plato's physical account of the universe. This is the reason why he stresses its nature as mortal, at least in principle, since it is a generated thing (37a–e). That it will never die is due to the goodness of the creator, not to its intrinsic nature itself (41a–b). If the world-soul is at the same time immortal and divine, it is so only to the degree that such an entity can be: it incorporates the principles of being, sameness, and difference in the way an entity can which exists continuously through time, i.e. by continuous and regular activity. That is, I presume, why the soul's activity of same-ness manifests itself as a physical phenomenon in continuous homogeneous locomotion, by circular motion and rotation. In its purity this circular motion is executed only by the souls of the fixed stars.[14] All other heavenly bodies also perform the motion of the different, and therefore are active in both senses; some have 'more different motions', others less (36c–d, 40a–d).[15]

But if the soul is 'of this world', and not of the other, the supertemporal one, why does it nevertheless have an admixture of the elements of the other world? The reason is clearly stated by Plato: it lies in its intellectual function. For the soul must be able to 'converse' with both the changeable and the unchangeable world (37a–b). The soul must not only both be and act in accordance with its constitutive elements, namely being, sameness, difference, and

dieu ou divin chez ce trop divin Platon"), many things are called "Gods" or "divine": the Demiurge is a θεός, so is the created Universe, so are the stars and planets' ('Plato's Theism', in R. Allen (ed.), *Plato's Metaphysics* (London, 1965), 440).

[13] If we concentrate here on the *cognitive* aspect of the soul's structure, this is not to deny the importance of the *physical* aspect, i.e. that it forms the basis of Plato's astronomy and at the same time accounts for the motion of the heavenly bodies.

[14] 'Sameness' in direction and 'likeness' in uniformity of speed. 'Likeness' had earlier been used already in the sense of homogeneity (33b on the homogeneity of a globe, ὁμοιότατον αὐτὸ ἑαυτῷ).

[15] On the limitations of Plato's astronomical model in the account of the motion of the planets, cf. G. Vlastos, *Plato's Universe* (Seattle, 1975), 58 ff.

the rational numbers and proportions, it must also understand them as it encounters them in dealing with things in the world.[16] So 'having' is the condition of understanding, in accordance with the principle that like is comprehended by like:

> And because she is composed of the same and of the different and of being, these three parts, and is divided and united in due proportion, and in her revolutions returns upon herself, the soul, when in contact with anything which has being, whether dispersed in parts or undivided, is set in motion by herself to declare its sameness to—and difference from—whatever (ὅτῳ τ᾿ ἄν τι ταὐτὸν ᾖ καὶ ὅτου ἂν ἕτερον), and how it affects each thing and by what it is affected, and in what way and how and when (πρὸς ὅτι τε μάλιστα καὶ ὅπη καὶ ὅπως καὶ ὁπότε), both in the world of generation and in the world of immutable being.[17] (37a2–b3)

So the world-soul can understand both the 'dispersed' world of particulars and the uniform world of the eternally selfsame. Such an economical middle status is, of course, only what is to be expected, given that Plato explicitly argues for the unity of the one visible world and for the unity of the world-soul. He therefore does not want to give two entirely separate souls to it; there are not 'two souls living in its breast', an eternal one that longs for reunion with its transcendent brethren, the Forms, and a temporal one that ties it to the world of change. No such split exists within the world-soul.[18]

But what, in fact, does this 'mixing' of the eternal and the temporal elements mean for the 'concepts' the soul consists of? Plato

[16] That this is the explanation has, of course, been seen by other commentators; cf. Cornford, *Plato's Cosmology*, 96, and Vlastos, *Plato's Universe*, 31: 'the soul straddles the two disparate realms of his ontology . . . Soul has a leg in each of these.'

[17] Concerning the grammatical ambiguities of the compressed text, cf. Cornford, *Plato's Cosmology*, 94 n. 4. I take it that the clause starting b2 with 'pros hoti' is a fuller version of the preceding one, stating all eventualities for unchangeable as well as unchangeable objects of thought. I do not find Brisson's construction convincing, because he translates 'ousia' as *substance* and assumes that the first clause determines the identity and difference of the substance in question, while the second clause details the predicates (*Le Même et l'autre*, 347). Apart from the problem of attributing the concept of substance to Plato, it would preclude that things other than substances are the entities the sciences are dealing with, such as the hard and the soft, the dry and the cold.

[18] The soul is thus equipped with the logical tools for doing dialectic and mathematics. Nothing is said about an innate knowledge of the Forms, unless one identifies the Forms with the numbers. But the text gives no hint of such a possibility. On the question of ideal numbers in the *Timaeus*, cf. Brisson, *Le Même et l'autre*, 275.

seems to want to signify that it is capable of applying being, same-
ness . . . both in a qualified way to deal with things in space and
time, and in an unqualified sense. Are they the same concepts? The
text seems to deny it. But if they are of a quite different ontological
order, why are they tied together, 'blended', in this strange way?
Before we go into any further speculations of our own, let as take
a look at the rest of the crucial passage:

And if discourse (*logos*), working with equal truth on the same and the
different in that which is moved by itself without voice or sound, turns
itself on the sensible, and the circle of the different, moving straight, passes
on its message to the whole soul, then arise opinions and beliefs sure and
certain. But when discourse is concerned with the rational (*logistikon*), and
the circle of the same moving smoothly points it out, then intelligence and
knowledge are necessarily achieved (νοῦς ἐπιστήμη τε). And if anyone af-
firms that in which these two are found to be other than the soul, he will say
the very opposite of the truth.   (37b3–c5)

The interpretation of this text is, of course, very tricky. The soul
is here engaged in two different kinds of 'silent dialogues', in its
onward course. There is the silent dialogue on the level of becom-
ing, the visible world (the motion on the circle of the diverse), and
here true and reliable opinions are achieved (δόξαι καὶ πίστεις
γίγνονται βέβαιοι καὶ ἀληθεῖς), while the dialogue on the level of the
unchangeable (ὁ τοῦ ταὐτοῦ κύκλος) leads to intelligence and know-
ledge. Nevertheless, it is the steadfast activity of reasoning (*logos*)
which achieves reliable results on both levels.

That the soul combines both knowledge and belief is, of course,
nothing new. The world-soul must be capable of both if it really has
the ability to be 'in touch' with all the parts of the world, of
conversing with itself on all the things that go on in the world (34b),
and of maintaining its proper order. Hence the soul must be able to
encounter both 'realms' in its activities. But how should this be
possible? If the soul is a thing in time, a member of the visible
world, how does it encounter things eternal, how are they con-
tained in the created world? If we do not want to assume that the
world-soul's 'moving in two different circles' is a kind of schizo-
phrenic activity, a spontaneous leap upwards into a 'hyperuranious
place', we should look for a more pedestrian interpretation of its
activities.

Since the world-soul contains a mixture of the temporal and the

eternal, we have to assume that Plato's universe, the one created world, also contains an admixture of the eternally selfsame Forms and the 'dispersed forms' within itself, i.e. we have to assume that such a combination of the eternal and the temporal is contained in the entities that fill this world, too.[19] This is now no longer a question of the possibility of such a mixture in the *soul* alone, but a question concerning the combination of Forms and sensible objects as such. We therefore have to answer the question both for the soul and for the created universe as a whole: how is such a mixture of the selfsame and the ever-changing possible? This, then, takes us to the second question, mentioned earlier. So after we have tried to answer the first question, why the soul contains a mixture of the eternal with the temporal, we will now turn to the question how these two disparate elements can be blended together.

In view of the supposed unity of the world, I want to contend that it is not just the double-sidedness of the soul itself, i.e. its membership in two worlds, that allows it to converse with entities in both spheres. I think the parlance of 'two worlds' is misleading in the first place, and it is certainly no accident that Plato himself employs no such terminology. The two-world terminology is rather the fruit of the translator's embarrassment, to give an adequate expression of the fact that Plato speaks of two different *orders*, the visible order that is fashioned after the intelligible one (*kosmos*, 29a2, b2; 30d1). The double-sidedness, emphasized by the 'blending', seems to be rather a feature of the one world itself. Since the world itself encompasses two different sets of order, the soul can move about in different ways in its comprehension of entities either as eternally selfsame or as 'dispersed and changeable' respectively. It moves in 'different circles' when it treats whatever it may encounter as either a contingent, sensory, or as an intelligible, stable, object.

The result of my subversive activities, which were designed to deprive the world-soul of access to any truths that the human soul could not in principle share, is obvious: I can, from now on, treat the world-soul and the human soul as on a par, and speak simply and without qualification of 'the soul'. The main difference between them, the assailability of the human soul by all sorts of confusions through the manifold conditions of the human body

[19] No 'gazing' at the Forms at the top end of an ontological ladder seems to be envisaged, as we find in the κατοπτεῖν of the beautiful itself, in the *Symposium* (cf. 210e, 211d).

(42a–44b), does not affect the question of how the mind itself works. For once the turmoil in the human soul has subsided, it can move in the orderly circles of sameness and difference (42b) in the same way as does the world-soul itself. It stands to reason that Plato had gone into the depiction of the world-soul's psychological make-up with an eye on the human soul all along. This would explain some of the otherwise inexplicable anthropomorphism of the world-soul's functioning. Having in essence been deprived of sense-organs, it is not quite clear how it could receive 'many intimations of sense', leading to opinions and beliefs.[20] If it makes sense to attribute any sensory awareness to it, the only plausible one is a general 'being in touch with' the order of the material world. What other kind of subject could it converse about with itself in that lower order? And it may well be that the conditional (37b6, c1) is an anticipation of possible mistakes made by the human soul. For how could the world-soul go wrong in its silent dialogues? But these may be some of the points where we should apply the kind of 'charity' Timaeus had requested from his partners, i.e. not to press him too much on such points of detail (29c–d).

DIALECTIC, BELIEF, KNOWLEDGE, AND THEIR OBJECTS

But how can it be maintained, someone might object, that Plato has only different *applications* of the soul's concepts in mind, when he clearly takes the Forms to be the paradigms for everything that is of a changeable nature, when he treats the sensible things as mere copies or likenesses of those ideal models, just as he did in the heyday of the Forms? According to my interpretation there will be no need to question that Forms of at least one kind in the *Timaeus* are eternal immutable paradigms. There seems to me no way around their paradigmatic function, and it serves no purpose to try to argue them away as if they owed their presence merely to Plato's

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[20] Cf. 33c: 'it has neither eyes . . . nor ears' (and obviously not smell or taste either). This might leave touch; but the ascription of circular motion and rotation as the only fitting motions might let us despair of that sensation too, as an explanation of the auto-communication of the soul in the world of the changeable. It is the *human* soul that needs the vision of the cosmic order (47a–c) to start philosophizing, for this is how it establishes order within its own motions.

semi-mythological rhetoric. I will rather suggest a reading that is compatible with the rhetoric, but that displays a theory of the Forms which does not presuppose as rigorous a separation between the contingent and the immutable, as at least some of the interpretations by the 'friends of Plato's Forms' presuppose. Whether my interpretation meets Plato's own intentions is a matter that is not for me to decide.

So back to the text. Plato's soul encounters two kinds of entities, the indivisible kind (*ameristos*), and the divisible kind 'that is portioned out in bodies' (35a). In each case it deals with them in a fashion that looks not all that different, however: 'when touching anything which has being, whether dispersed in parts or undivided, it is stirred through all its powers to declare the sameness and difference of this thing and some other, and what they affect and by what they are affected, and in what way and how, and when—both in generation and in immutable being' (37a–b). It is significant that the soul is clearly not supposed merely to gape in silent admiration at the Forms themselves; nor is it to call on them to explain the nature of the visible objects as something 'hanging above' them in a heaven of ideas. It is in fact treating the Forms in the 'circle of the eternally selfsame' as if they can accept the same qualifications as do those that are 'portioned out' among the sensible objects: it establishes their sameness and difference, interactions, affections, and even the conditions of those relationships 'in what way, and how, and when'. If this is not a slip on Plato's part, a grammatical imprecision, then the soul functions in the same methodical way, whether it deals with objects in the circle of the eternal, the Forms, or whether it deals with changeable objects.

Loose talk in such a crucial text which explains the functioning of the soul is highly unlikely. It seems therefore that Plato is here describing the soul's work in a way that is supposed to remind us of the method of dialectic of the kind we find hinted at in the *Theaetetus* and discussed more fully in the *Philebus*. If this is true, then we can first of all draw on these other texts to explain the parallel treatment of the objects of the two different 'orders' in our passage in the *Timaeus*, and we can also feel justified in using the examples he employed in the other dialogues, as an illustration of the objects that the soul uses in its movements in its two 'different circles'. So let us turn then to the expert in music and to the master in the art of writing again. In what sense do they deal with 'same-

ness', or 'difference' or 'being itself', i.e. with strictly identical and unchangeable eternal objects? And in what sense do these intelligible objects form at the same time the ideal patterns of the changeable 'dispersed' objects of the senses?

It may at first be somewhat strange to think of the writing- and music-master as handling Forms. But it is actually quite simple and straightforward to explain in what sense these experts always deal with the 'eternal'. For the 'grammarian' the elements of his art, say for instance the letters A or E, will always be the same in so far as they are the objects of his art. When at work in his discipline, he is dealing with the A or E as such, the unchangeable elements of his art.[21] If they are treated in the 'technical' way, γραμματικῶς, they are not 'scattered' instances, 'portioned out in this or that body', i.e. written in a more or less wobbly way on this or that blackboard. What is written on the board are the 'scattered' entities that bother the schoolboy, who has to learn how to write them, and who has trouble recognizing them again, once he has written them. It is the schoolboy who is dealing with this visible and changeable A or E, and he may in fact end up with a right opinion about them, their being, sameness, and difference.[22]

The art itself, by contrast, deals only with the prototypes, not with individuals in space and time. And if the expert studies the connections between his entities, the conditions in which they occur, or, to express it in Timaeus' words, 'what they affect and are affected by, and when and how', this concerns once again not the conditions of their sensible, temporal occurrences, but their intrinsic conditions and interrelations; their discovery and exact determination are the task of his art. There are, in brief, first of all the

[21] This chapter's discussion is based on the hypothesis that there are Forms for each kind of multitude that has a common name, as Plato expresses himself in the *Republic* (596a). As Burnyeat rightly reminded me, this may mean no more than that all these kinds of entities are *related* to a Form, the Form that consists in the divine creator's concept of their goodness and fittingness (601e–602a). So the Forms might possess a much more abstract nature, instead of forming the intelligible counterpart of each kind of thing. Since this is clearly too large an issue to be discussed here, I want to emphasize the conditional character of this chapter's basic assumption, without even touching on the question of what allows us to determine what is a natural kind and what is not.

[22] We can leave aside the question whether the art of writing or music can aspire to the degree of purity that Plato demands in *Phlb.* 55d ff. for the pure as opposed to the applied sciences. For our purposes it suffices to envisage a Platonically enlightened music- or writing-master. The schoolboy's learning of sameness and difference in writing is also used as the paradigm in *Plt.* 278a–c.

generic and specific interrelationships and differences, as depicted
in the discussion of the dialectical method in the *Philebus*. Both
letters, A and E, are vowels, they share the same genus and
subgenus. They will always be different in being different species of
vowels. There are, of course, also many other aspects in the world
of the eternal Ps and Qs, which the expert will study, such as their
possible combinations and incompatibilities. This is the feature of
such expertise that we find stressed in the discussion of the 'inter-
weaving of the Forms' in the *Sophist* (253a–c). In this case the artist
moves in the soul's 'eternal circle'.[23]

What is not studied by the expert, except incidentally, are the
peculiarities of particular sensible occurrences of As or Es, their
actual samenesses and differences. There is nothing worthy of sci-
entific study here. That a schoolboy may confuse Θ and T when
trying to spell 'Theodorus' is of no scientific interest. Nor are any
other such features, e.g. the wobbly images of the letters we pro-
duce. This is not to say that the expert can skip the work in the
'second circle' entirely: he needs the sensible images of the objects
of his art to do his work and to communicate with others. And he
may occasionally be confused by such images, and wonder whether
any such two occurrences are ever quite the same, and feel riled by
such difficulties, especially in his function as a teacher.

Whether he treats such mundane questions as part of his art or
not, it is clear that in their 'dispersed' form as individual occur-
rences the characters will have to be treated differently from how
they are dealt with when they are 'themselves'. The A I just enun-
ciated has a beginning in time, a duration, an end. It has a location,
an intensity, it is not strictly homogeneous. My voice may have
wavered. For this reason such entities are never on the level of the
'selfsame', even if we call them the same. It becomes intelligible,
then, why for Timaeus they belong *eo ipso* on the level of the
'diverse': they are always differentiated in various ways from all
other individual occurrences that are not specifiable in terms of the
art itself. So that is why the soul when it encounters the actual
occurrences moves always in the circle of the 'diverse'. This is not
only true of the particular entity which shifts, changes, etc., it is also

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[23] Obviously none of the late dialogues, taken by itself, gives us the full account
of the dialectical method. The *Timaeus* clearly presupposes our knowledge of the
technique of *dihairesis*, as well as an understanding of the importance of combina-
tions and separations of Forms.

true of the conception I will have of it: I will treat it as changeable, variable, existing in time and space. So even if I ask myself whether two things I have encountered are actually the same, I apply 'sameness' and 'difference' with all the qualifications required for objects in the sphere of the changeable.[24] That is why Plato can talk of two different sets of common concepts of being, sameness, and difference, one for the eternal and another one for the temporal sphere.

But does this illustration of the different methods not speak for strictly separate circles, i.e. for a two-world theory, which I tried to deny for Plato in the *Timaeus*? I want to maintain that in spite of the difference in the conception of the entities on both levels there cannot be a strict separation of the two circles, at least for the human mind. A mixture or combination of the two is in fact necessary. For otherwise I could not think of this particular A as *an* A, a member of the species vowel, etc. No dialogue of the soul with itself could get started in which it could establish a sameness in the circle of the 'diverse', i.e. in the ever shifting realm of the beings that come and go. If the soul could not do this kind of ordering of the sensible phenomena under the perspective of the eternal, it could not even begin to study any of them as possible members of a species, genus, etc. In order to be able to subsume a sensible instantiation under its specific Form, the mind must be able to pass from one level to the other without problem. That is why there must be a blend of the sensible and the intelligible ordering concepts. If there were two entirely separate sets of concepts, it would not be clear how they might be related or even whether they could be related. In short, if the soul could not combine the two ways of encountering its entities by moving from one circle to the other, it could do no scientific investigations in this world, it could not recognize the copies as ὁμοιώματα of the Forms. This, however, is how Plato lets the human soul discover that there is a higher order of things. That there is such an order within disorder is discovered by the soul because of its contact with the regularity of the heavenly

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[24] This is not the occasion to argue for the details of such a theory, but it is clear that the scientist *qua* scientist will only be concerned with generic and specific samenesses and differences. Sensible objects display all the problems that we encounter in everyday life: whether the shade of colour is the same as it was yesterday, whether two instruments are really in tune, or whether a person has changed, etc.

order (47a–e). Without the observation of continuity in time and of regularity in change, we could not conceive of any sameness, or specifiable difference, not even of the 'scattered' sameness or difference of a recurrent A or E. There would not even be *doxa*; instead there would be only a disordered flux of appearances for us, as envisaged for the stage before the demiurge put order into the sensible world (53a–b). Once such regularity, identity, and difference is discovered, we can find it everywhere, whether we start with individual cases or whether we have reached a relatively general level of comprehension. Such a progression in both directions seems presupposed by the divine method in the *Philebus*: you can proceed 'top down', from the generic *one* to the unlimited multitude, or you may, by force of circumstances, have to move in reverse direction, 'bottom up', and first seek to establish an order in the unlimited multitude of dispersed occurrences by discovering identities and differences (16c–e).

After all this appealing to plausibility, the crucial question can be formulated as twofold. Firstly, what evidence do we have that Plato assumed the same kind of dialectical method for the working of the world-soul in the *Timaeus* that we find in some of the other late dialogues? Secondly, how is such a claim compatible with the model–copy distinction, and further, with his insistence on a separate language for the two orders?

As to the first question, there is the striking occurrence of 'being, sameness, difference, and number' as the elements of the world-soul, which I have exploited so far. It is all the more striking in the *Timaeus* since the 'paradigmatic' model of creation would let us expect rather different elements of the soul: the perfect models of all things. Instead, the soul seems to equipped with merely the tools for doing dialectic and mathematics, both in the eternal and in the temporal world. If the elements of the soul, being, sameness, and difference, are Forms, they are clearly not perfect models of imperfect copies, in the sense in which Animal would be the model of sensible animals. Since sameness, difference, etc. are relatives and always need a complement (sameness or difference in kind, in size, in quality), there cannot be a perfect Same or a model Different that has the same meaning in all cases.[25] That Plato does not have

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[25] This must remain an undefended claim here; a proper defence would presuppose a discussion of the interweaving of the Forms in the *Sophist*.

any such 'model characters' in mind is made clear when he affirms that sameness and difference in the eternal take on the same specifications as they do in the temporal: sameness and difference in this and that respect, with such-and-such qualifications.[26] The crucial difference between the concepts on the level of the eternal and the temporal level is that in the realm of the eternal the same things are always the same and the same ones always different in the same way, in the same respect, and with respect to the same things.

That the same basic conception of dialectic as the basis of ontology is at work here as in some other late dialogues is actually not discountenanced by Plato's claim that the eternal Forms and their temporal counterparts presuppose a different vocabulary and concepts, if confusions between the eternal model and the 'moving image of eternity' are to be avoided (29b, 37e–38a). That Plato is not trying to establish thereby a strict separation between two worlds, the world of perfection and the imperfect material world, becomes clear if we look at the reasons why 'temporal vocabulary' should not be applied to the eternal Forms. He is not concerned with 'soiling the pure' by the contact with the 'impure', but with the avoidance of dialectical confusion, of applying 'temporal vocabulary and notions' to the eternal, abstract concepts themselves. Such a confusion occurs when we attribute temporal existence to the general concepts by predicating 'was', temporal 'is', or 'will be' of them. Equally wrong would be the application of the 'is' of the eternal present to temporal entities. Plato clearly has the same confusions in mind against which we are supposed to steel ourselves through the 'laborious play' in the second part of the *Parmenides*, where we get the preliminary exercises in dealing with Forms, how to treat them or not to treat them as wholes, unities, pluralities, at rest, etc. These are the confusions which can arise when the soul, to speak in the language of the *Timaeus*, is not clear about the circles it moves in. That the *Timaeus* has the same kinds of confusions in mind as the *Parmenides* is indicated by one of the examples he gives to explain the need for a separate vocabulary, namely that what is atemporal cannot become older or younger: '. . . but that which is immovably the same cannot become older or

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[26] Plato therefore anticipated later criticism that relative concepts such as 'the like' (αὐτὸ τὸ ἴσον) need specification. The question must remain moot here whether he saw this clearly when he wrote the *Phaedo*.

younger by time, nor can it be said that it came into being in the past ... nor is it subject at all to any of those states which affect moving and sensible things and of which generation is the cause' (38a).[27] Now, who is likely to fall into such confusions or see a problem here? It must be a problem for all those who assume that because all sensible things change, their types or kinds change too; in that case there would be no such thing as 'man' or 'fire'.

The *Timaeus* seems therefore to presuppose that the reader is familiar with those problems, and also with the fact that they are capable of a proper solution, as long as one keeps one's linguistic habits clean. A 'reformed' or 'discriminatory' kind of dialectic would be exactly what the soul needs, within the framework set by the *Timaeus*, to make sure that it is treating its objects right. That is why the soul needs to be aware of the fact that it uses language and concepts differently when it moves in its two different circles.

That Plato seems to presuppose that these difficulties can be overcome is, as I tried to claim earlier, the upshot of the 'dialectical passage' in the *Philebus*, where the report concerning the difficulties with 'the one and many' also refers back to the discussion in the *Parmenides*. As Plato points out in *Phlb.* 15d–16a, such difficulties are the result of the kinds of discussions that young boys delight in when they touch them for the first time.[28] The 'godly method' of putting order into one's research by establishing a structure within the field seems to Plato obviously sufficient to avoid the problems for the theory of the Forms.[29] What makes it difficult to compare the method of dialectic presupposed in both dialogues is the difference in focus. The 'godly method' is not concerned with the formation of opinions, but with the correct procedure for establishing knowledge in any given field. Plato seems to assume that this at the same time allows us to deal properly with the temporal instantia-

[27] For the paradoxes of time, cf. *Prm.* 140e–141e, 151e–152e, and *passim*. Not all of the paradoxes are concerned with time, but many point up problems resulting from different meanings of terms, when applied to Forms and to spatio-temporal entities, respectively.

[28] Once they have seen the puzzles that can be drawn out of the possibility of allowing either no predicates for the Forms or all sorts of predicates, the bright boys so trained may indeed make much mischief. Young boys are already in *Rep.* 7. 539b removed from dialectical exercises, though perhaps not for the same reasons.

[29] How, precisely, this 'divine method' answers all the problems adumbrated in 15b–c cannot be discussed here.

tions of the classes of entities, once we have established the generic and specific unities and their differences. He gives no practical advice there as to the application of his method, but confines himself to the prophecy that strenuous search will lead to the desired results (16d). In the *Timaeus*, by contrast, Plato takes both knowledge itself and the proper procurement of true opinions in the sphere of the sensory into account. He recommends that we should treat the visible things in the same way as the intelligible ones, provided we are aware of whether or not we use the concepts of being, sameness, and difference with or without their temporal qualifications. So the different picture prima facie presented in the *Timaeus* is due to the fact that both the soul's scientific and its unscientific (but true) dialogues are accounted for.

THE FORMS IN THE *TIMAEUS*

If Plato is not thinking of Forms as transcendent entities, outside or above the world, but conceives of them as the kind of entities that his frequent use of the example of the writing- and music-master in his other late dialogues suggests, then we will search for the Forms within the field of science itself, rather than behind or above it. Let us continue on that line a little bit further, to see how far it will take us and what more enlightenment we can draw from it for the *Timaeus*. The Platonic scientist, so I have suggested all along, finds his field within this one world. Where he differs from the amateur is in regarding his entities not as 'visible' objects but as 'intelligible objects' that are not subject to change in time or place or to any other such modifications. The objects of his mind are the intelligible, unchangeable features of reality. The 'real musician' will, for instance, not be vexed by my making a slip of the finger and playing a G♮ in the A major mode, if it is clear that this was just an accident in the 'temporal' performance of music. He will be vexed with his fellow composer, however, if the latter writes such a note in his composition and claims that this is how it ought to be. There are no G♮s in the A major mode.[30]

There is, admittedly, something odd in the claim that there are

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[30] Plato would, of course, express such injunctions concerning permissible steps within a mode in terms of mathematical ratios.

'intelligible' musical notes, and even more that there are letters or other elements of sensible things outside time. But such a move is necessary if Plato wants to avoid the trap for his theory, which he had exposed in the *Parmenides*, the trap that the Forms are entities that have the same physical properties as their copies, just in a more perfect form. If that assumption is done away with, then we can no longer embarrass Plato with questions such as whether the Form of G♯ is a particularly clear and loud G♮. It is not a particular sound at all. It is *the* G♮ that all composers talk about when they say that it does not belong in A major, but that it does belong, for instance, in F major.[31] Similarly, the writing-master will not be vexed if you ask him whether the 'Form of A' is an A with extra-straight lines, or whether its sound is extra long or short, crisp or soft. He may tell you that the Form is just the prototype of all As, written, spoken, or thought of. This, it seems to me, is the upshot of Plato's insistence that the paradigms are not visible or audible objects but intelligible ones, which do not depend on their physical representations. The musician's G♮ would in fact remain the G♮, even if there were another Vienna conference that reversed the decision and moved the A♮ down again from 440 to 430 Hertz. Plato's demiurge might frown at our moving the sensible images around ad lib and mumble something about the fittingness and beauty of 440 Hertz versus 430, but the decision would not change music as such. What is unalterable is the fact that G♮ keeps its place within the harmonic structure of the F major scale (a 9:8 step up from F) and has none within that of A major, regardless of our actual use of 'sensible images'.

As will be noticed, I have moved from the abstract concepts, such as sameness, difference, number, on to the paradigmatic Forms, such as ideal sounds in musical modes and letters. This shift is not without reason; for as I acknowledged earlier, paradigmatism looms large in the *Timaeus*, since the whole world-order is said to be the imitation of a divine model. To explain the nature of the world-soul as that of a living creature endowed with soul and reason (30b, ζῷον ἔμψυχον ἔννουν), Plato introduces the Form of the Animal. What is more, there is even a hierarchy of such model Forms: there is Animal itself, and there are four Forms of animals,

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[31] This is the intention of the question that one composer may ask another as to 'what this G is supposed to do there'. If he has sufficient respect he will assume that it must be a misprint right away.

corresponding to the kinds of animals in the world. And as 'Animal as such' contains all kinds of animals, so must the world, as the created copy of the eternal model, contain all possible sorts of animals.

This paradigmatic conception of Forms does not, however, resist the dialectical treatment that I have attributed to the world-soul. Let us leave the question of the 'idealism' of the 'model animal' aside for the moment, and merely observe that the 'intelligible animal as such' is depicted by Plato as nothing but the highest genus, and that the hierarchy envisaged is that of genus and species (30c): 'let us suppose the world to be the very image of which all other animals both individually and in their kind are portions. For the original of the universe contains in itself all intelligible beings, just as this world comprehends us and all other visible creatures.' 'Containment' is clearly used in two different senses here, as is confirmed by the argument for the uniqueness of the world: any duplication on the 'intelligible side' could only be a higher Form that would have to include the lower Form of Animal (31a), while the duplication of the physical world would mean a numerical physical duplication, i.e. a second such intelligent living animal. What does the Form of Animal signify, and how does it contain the different genera? The Form Animal itself stands for what it means to be an animal, and it contains the possibility of further specifications, i.e. of the four kinds corresponding to the four elements, fire, air, earth, and water. In each case the Form specifies what it means to be a fire-animal, a heavenly body, an animal living in the air, in the sea, or on land (39e–40d). The Form will contain all the conditions that determine that the creature will be fitted to its purpose. And these intelligible and unchangeable structures of reality, the *paradeigmata*, exist independently from any particular being that is fashioned after them.

If it is right to call both the *paradeigmata* and the common concepts Forms, then Plato clearly presupposes two different kinds of Forms in the *Timaeus*. There are the formal concepts, the *koina*, on the one hand, and the perfect models on the other; and the soul commands the one kind, while the world (including the soul itself) is furnished according to the other. I think nothing is gained by any attempt to deny this 'swallow-tailing' of the Forms into two kinds in the *Timaeus*; but I also do not see that this creates any great problems for Plato either. The Forms are general standards, where

such general features are discoverable and appropriate, i.e. in the furnishing of the world-order that makes it a perfect, regular, and rational world. The Forms are formal concepts where no such ideal standards but the interrelationships between the entities are in question, whether between Forms or between sensible particulars.

Some of the old problems addressed in the *Parmenides* concerning the relationship between Forms and their copies need not resurface in the *Timaeus*, if one takes the restrictions seriously that Plato stipulates here for the intelligible models: the 'intelligible animal' (*νοητὸν ζῷον*) is not itself an animal, living, breathing, moving around. I assume that the epithet *νοητόν* is supposed to stress that fact. It is the conception of an animal: the creator reflects on what it means to be a living creature and conceives its preconditions: 'when he was framing the universe, he put intelligence in soul, and soul in body, that he might be the creator of a work which was by nature fairest and best' (30b). The Form of the world-soul, of this intelligent mortal–immortal animal, is conceived of in reference to its functions. If it is to be of this kind, it must consist of these elements and perform such activities. Are these Forms nevertheless to be regarded as transcendent entities, existing independently from their instantiations? I see no reason to deny that the intelligible models, since they are not created, simply are whatever they are. There is animality, just as there is circularity or sameness, once and for all, unchangeably, to be grasped by the mind. But I would find it quite difficult to be more explicit about this transcendent status.

So the Form of the Animal will not contain more than the intelligible principles that determine what it is to be an animal of a certain kind, and these intelligible conditions will at the same time set the framework for the physical conditions, i.e. for the kind of body the animal will need and for the external conditions under which it will live. The Form of the Tiger is then not the ideal Tiger with particularly sharp and shiny teeth and claws, and the most beautiful and regular stripes. The Form of the Tiger will rather be the set of general features that such a quadruped must have. As to the question how these general features are embodied, Plato admits that this is an exceedingly difficult question (50c). And it is no accident that he attributes the execution of the actual generations of animals to the forces of nature, 'the younger gods'. Nature will

have to contend with all the physical conditions, the conditions of necessity that determine what an actual living creature will be like—once its general structure is settled. The rest of the *Timaeus* is then filled with explanations of how reason makes the material conditions serve these intelligible purposes. Such an intelligible, unalterable structure is relatively easy to construe when it comes to the basic elements, the atoms built up from triangles; it becomes a rather arduous task when a complex organism is at stake. Timaeus does not pretend that he knows the Forms and their necessary material conditions; he welcomes all those who have better ideas (54a). Humanly speaking, we can only look for the best explanations that fit the bill, of what seem to be the unalterable structures in any given field. At this point it will dawn on us: some of the Forms, such as the Form of Man, will be exceedingly complicated entities. But then Plato does not promise us anywhere that the Forms are simple things or that dialectic is easy.[32]

There are then no literal look-alike eternal 'models' for the physical objects. The models are in each case the intelligible conditions, which stand in relation to their sensory instantiations in the same way as the types of sounds, as defined by the principles of harmonics, stand to the audible sounds. What makes it difficult for us to envisage this kind of 'copying' of an original is the fact that normally copies do in the literal sense resemble their originals. The copy of a Rembrandt is a picture, the copy of good behaviour is a kind of behaviour; in everyday life copy and model are entities in the same ontological order. There seem to be no such restrictions in Plato's conception of imitation, at least not in his later dialogues: the sophist can 'imitate' reality in words, by passing on would-be-knowledge of 'all things'. But his words are clearly not mirror images of reality. Young Theaetetus' initial bewilderment with such a notion of 'making all things by imagery' shows that it takes some familiarization for a Greek, too, to understand what the Eleatic Stranger means by 'copying in words' (*Sph.* 232c ff.).

Plato's 'imitations' do not always make such high demands on

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[32] Passages like *Phd.* 76 ff. may promise simplicity at some stage of the theory of the Forms, but when Socrates' anamnetic assistance in the *Meno* turns out to be a lecture in geometry, the suspicion becomes irrepressible that 'seeing the divine square or triangle' may actually mean understanding Pythagoras' theorem and more! Some Forms may be simpler than others, and Plato may have discovered the full complexity of the latter only fairly late.

our ability to envisage abstract 'likenesses'; the Forms in the
Phaedo (the Equal) or in the *Republic* (e.g. Justice itself) do not
prima facie force us to strain our comprehension to the same de-
gree. But that is probably wrong already for the *Republic*'s concep-
tion of justice. The conception of a healthy soul and a healthy state
are by no means simple things. Plato would not have needed so
many books to work them out if they were. Whatever the history of
this development may be, the *Timaeus* clearly makes high demands
on our comprehension. That there are supposed to be 'mobile
imitations' of an immobile eternity must mean that there cannot be
any resemblance between this copy and its original in any literal
sense of 'resemblance'.[33] We can comprehend such a 'copying' at
best in the sense that the copy incorporates, or is made after, a set
of intelligible principles. In this sense one may say that continuous
circular motion is the 'mobile image' of strict sameness, i.e. the only
kind of sameness there can be in a world of change.

What kinds of entities have Forms according to this ontological
scheme? I suppose that all entities have Forms that allow for a
systematic or normative ordering that display a stable structure and
serve a definable purpose. There must then be a Form for every-
thing that is definable or sortable. This at least would explain why
the world-soul is said to deal with the Forms in the same way as it
deals with the things it encounters in the visible world, by sifting,
sorting, and classifying, and by working out 'what stands in relation
to what and in what circumstances'. This could, perhaps, even
include a Form of dirt (as a form of earth) and a Form of hair (as
part of the body), to take up Parmenides' examples that embar-
rassed young Socrates (*Prm.* 130c–d). There are, after all, intelli-
gible principles explaining the different sorts of earth and the
different parts of the body, as Timaeus will show (60b ff., 76e).
But this is just an aside; there is no need to decide that question
here.

But why does Plato put so much emphasis on this, at first sight
rather confusing, kind of paradigmatism in the *Timaeus*, so that we
get the impression that the demiurge 'sees' ideal animals? The

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[33] In some cases look-alike imitations seem feasible, as in the case of a circle and
circularity. Whether this is correct for the late Plato is unclear. If the Form of the
circle is its intelligible principle, then the Circle is the geometrical place of all points
having the same distance to a given central point, rather than a perfectly curved
thing.

answer must lie in his teleological conception of the world, i.e. that the world as a whole is supposed to be good (28a–b). So this suggests prima facie that the demiurge sees ideal animals inhabiting an ideal word. The scope of this chapter does not permit a proper discussion of Plato's teleology. Suffice here to say the creator's 'vision' can be demythologized in such a way that the created objects are to be conceived as fashioned after a pattern or structure that makes them in principle perfect in their kind. This then allows us to say that the Forms of all entities are intelligible models. If the sensible instantiations are always only relatively good approximations to those intelligible 'models', this means that they incorporate their principles only to a limited degree. These ideal Models are not only designed to give each kind of thing its own principle of perfection. They are at the same time to guarantee that the entity will fit in with the whole world-order. So the intelligible principles must conform to the Platonic ideal of cosmology that stands behind the whole discussion: that the created world must embody regularity, continuity, and harmony. For this reason Plato puts so much emphasis on the need for the knowledge of the beneficial, ὠφέλεια, as the ultimate aim of dialectic, as he does in the passage on the common concept in the *Theaetetus* (186c3). Timaeus likewise appeals to his partners' teleological understanding, of how the order is designed for the best and most beautiful, as part of their education as the prerequisite for their ability to follow his unusual demonstration (53b–c). The best and most beautiful is in each case what is best suited to perform its specific function in a rational, well-integrated, world-order.

This defence of Plato's paradigmatism will not settle all questions or satisfy all critics. Plato may be playing a dangerous conceptual game; but one can at least see how he hoped it could all be fitted together. He hoped to combine the changeable with the eternal aspects of the world in such a way that it would become apparent why his theory of Forms is not vulnerable to the reproach that the Forms are 'totally useless', as he expresses himself in the *Sophist* (248a). The problem Plato ascribes there to the 'friends of the Forms' is that unassailable models in strict separation from their copies will be totally inactive, so that they will have 'neither life nor thought, but stand immutable in solemn aloofness, devoid of intelligence'. Whether Plato's theory of the Forms itself ever deserved this reproach or not, in the *Timaeus* the combination of

the two circles of the soul and its ability to move in both of them
acquits him of such accusations. The common concepts, and with
their help also the Forms of 'all else there is', are quite within
the reach of the soul. They found and explain the order of the
world.

CONCLUSION

What makes it so difficult for us to understand the depiction of the
world-soul's activities in the *Timaeus* is Plato's figurative way of
speaking. I have referred already, at the beginning of this chapter,
to the difficulty of understanding the exact meaning of the 'com-
mingling of elements' of the soul to a kind of dough, the 'measuring
off of strips of soul-stuff in proportion', the forming of circles, and
the circular motion ascribed to the soul. These metaphors make it
very difficult to follow Plato. Timaeus himself had, of course,
warned us that he would make use of figurative speech. The whole
philosophical discussion in the *Timaeus* is prefaced with such a
warning. While the resumé of Socrates' 'static' picture of the best
state promises that it will become fully real and true when depicted
'in motion', as a historical development (26c),[34] the reverse is an-
nounced for Timaeus' cosmology. The mobile image is only an
image of reality, and so he can only tell a likely story (*eikota
mython*, 29d), as befits anyone who deals with the changing world
as a copy of an eternal pattern. So while in politics the world in
motion is the true one, in the cosmic order of the world the mobile
world is only an image. What does that mean in non-figurative
terms? Plato would presumably have told us that himself if he
could have done so. It is very difficult to explain how 'the word has
become flesh'.

The position maintained in this chapter, to sum it up very briefly,
is this. Plato's insistence that the eternal immobile model is 'the
real thing', and the mobile world only an image, is to stress the
sincerity of his conviction that the intelligible pattern, the unchang-
ing network of principles, must be the foundation of physical real-
ity. Only because there is such a *fundamentum in re* can we have

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[34] 'The city and citizens, which you yesterday described to us in fiction (ἐν μύθῳ),
we will now transfer to the world of reality (ἐπὶ τἀληθές).'

concepts, which allow us to understand and explain the world. Without the 'really real' unchanging counterpart of these concepts our thinking would be nothing; there would be only a groping for stability in an ever changing world, which could at best provide us with similarities without any fixed point to determine their nature. What this unchangeable pattern is that accounts for the relative stability of the appearances can only be guessed by human beings. That is why Timaeus invites others with possibly better theories to join the investigation as friends and not as rivals (54a). For the concepts that we have are not entirely separable from the particular applications that we make of them, nor are they discoverable independently from the experienced world.

The application of the formal concepts of 'sameness' and 'difference' and numbered order in general allows the scientist to work in his field, in the way indicated so often for the musician and the writing-instructor. Proper distinction of sameness and difference in the order of the eternal ensures that the scientist keeps the 'real objects' of his science in mind as they are 'in themselves'. But sameness and difference are also applied in everyday connections all the time. What makes them less stable and precise here is, first of all, the fact that in the realm of becoming the conditions of sameness and difference never remain stable.[35] Secondly, for sensible objects *qua* sensible these conditions can never be fully given (the nuances do not allow us to specify with any precision, for instance, in which way this F♯ is the same as the one I heard a short while ago). The infinity of possible variations and vacillations prevents precision here. Without immutable tools and a firm conceptual framework that helps us to determine the types of entities not even a relative certainty about the realm of the changeable could be attained. With the help of dialectic we can then at least hope to distinguish the important variations from the unimportant ones. And once this is achieved we can further hope to work out the real structure of things with some degree of verisimilitude.

The Janus-headedness of the general concepts, their functioning with or without temporal qualifications, is a consequence of the need to explain the world at the same time as intelligible and as sensible. Since our mind, in the same way as the world-soul, has to

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[35] Both the objects and our perspective of them may change at any time ('in this respect the same, in that different').

be able to understand the ever changing reality around us ('if any one of us ever wants to find his own way home', *Phlb.* 62b), we need to be able to apply the concepts to this changing, unstable world. The concepts themselves are, however, unchangeable, and so we have to possess an understanding of them, taken both by themselves and as they are employed in the applied sciences. The soul, therefore, is to consist of both elements together, and this understanding must be reflected in our language.[36]

What is achieved by making the concepts Janus-headed, by assigning the soul this economical middle status between the timely and the eternal, is the ability to cope with a Janus-headed world. For in spite of the seeming unreliability of the phenomenal, there is underneath it a stable and self-sufficient world-order, which guarantees that it can continue to function for ever. For once the harmonious order is established, the *kosmos* can maintain itself as a self-sufficient and complete being (33d, 68e). The 'unspeakable father' is not involved in the actual life of the child, the 'intelligent animal', and so this guarantor for the rationality of the whole no more interferes with the further life of the child than does the 'odourless mother'. The economy deployed by Plato in the construction of the world-soul explains the ambitious title of this chapter. The soul has all it needs to function in this world, to keep it going, as well as to comprehend it.

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[36] *Tim.* 29b: 'Words are akin to the matter which they describe; when they relate to the lasting and permanent and intelligible, they ought to be lasting and unalterable, and, as far as their nature allows, irrefutable and invincible . . .'.

What Kind of Cause is Aristotle's Final Cause?

DAVID FURLEY

I

Anaxagoras says it is *because* Man has hands that he is the most intelligent of the animals. But the right account is that he got hands *because* he is the most intelligent. For hands are a tool; and nature, just like an intelligent man, allots each tool to one who can make use of it. (Aristotle, *de Partibus Animalium* 4. 10. 687ᵃ6–11)

The opposite view is expressed by Lucretius:

This fault we urgently desire you to avoid, this error to shun with fearful care. Do not take the bright shining eyes to have been created *in order that* we may be able to see. Do not believe that the tops of calves and thighs supported on feet are able to be bent *in order that* we can advance our eager steps. Do not accept, again, that arms are fitted to strong shoulders, and hands provided as servants on either side, *in order that* we can make what will be of use for life. All such theories are back to front, the product of misdirected thinking. There was no seeing before the lights of the eyes were born, no mouthing of words before the tongue was made. Rather, the origin of the tongue long preceded speech; ears were made far earlier than sound was heard; there were in fact, as I hold, all the members, before there was their use. (Lucretius, DRN 4. 824–41)

In this chapter I aim to examine what I take to be the target of Lucretius' attack: namely, the thesis advanced by Plato, and especially by Aristotle, that many structures and processes in the natural world occur *in order that* something may be the case. Lucretius himself believed, of course, that there are *results* or *outcomes* of natural structures and processes; what he denied was that these

structures and processes were *for the sake of* their results. As a matter of English usage, I assume that the expression 'for the sake of' followed by a noun is equivalent to 'in order that' followed by a verb.

What Plato and Aristotle claimed was that when some structure or process X could be said to occur in order that Y should be the case or for the sake of Y, then Y could be said to be an *aition* (or the feminine noun, *aitia*) of X. The purpose of this chapter is to inquire into the kind or kinds of connection between X and Y accepted by Plato or Aristotle but denied by the Epicureans.[1]

II

There has been a lot of hesitation about the right word to choose to translate *aition*. When Aristotle says there are four kinds of *aitia*, some have claimed that 'four causes' is a misnomer: we should prefer 'four kinds of explanation', or 'four kinds of reason', or four 'becauses'.

I shall avoid the word 'explanation' because I believe it normally refers to a proposition or set of propositions—a verbal item—and Aristotle uses *aition* to refer to a fact or a state of affairs or a thing or a person. I shall avoid the word 'reason' because when it is applied to natural processes it may seem to prejudge the issue of whether *aition* denotes a connection that exists objectively in nature or one that forms a part of a theory. And I shall avoid talking about 'becauses' since I do not understand the distinction people want to make when they use that term instead of 'causes'. So I shall

[1] I wrote the original version of this chapter early in 1991, and read it to the (British) Northern Association for Ancient Philosophy, and in a revised form to the meeting in honour of Günther Patzig in Berlin on 25 July 1991. I made some revisions to the text following the latter meeting, partly in response to comments made by John Cooper (for which I am very grateful), partly because I discovered the treatment of the same problems in Terence Irwin's book *Aristotle's First Principles* and in Frank Lewis's article 'Teleology and Material Efficient Causes in Aristotle' (details in the References). These revisions were made in some haste, because I believed that publication was imminent. Now (October 1995) I believe that publication *is* imminent, and there is no time to make the further, rather extensive, revisions that further thought has suggested. I hope that my account of teleological causes in the 'becoming' of individual biological specimens will stand; but I hope some day to complete a fuller account of the operations of teleological causes in Aristotle's cosmos as a whole.

translate *aition* by 'cause', and the kind of cause that is 'that for the sake of which' as 'the final cause'.[2]

It may help to take a brief look at some earlier, non-philosophical examples of the use of *aition* or *aitia*. The Attic orators, Hippocrates, and Thucydides are the most convenient sources, because they are all particularly interested in *aitia*. We find, briefly, the following.

Hippocrates, in the essay *On Ancient Medicine* (19), offers a definition of cause: 'Those things should be deemed causes of each ailment which are such that in their presence it must necessarily come about in this manner, and when they change to another combination it ceases.'

The orators, especially, attach the adjective *aitios* to people, in the sense 'responsible for'—usually responsible for something culpable, sometimes for something meritorious. Often the person's responsibility is defined by a participial phrase: (an invented example) 'He is to blame for the damage his sheep did to my property, having let his fence fall into disrepair'.

Thucydides sometimes shifts this use from the adjective *aitios* in agreement with the subject to the neuter form, to make a noun: 'The cause (*aition*) of sending the ships was the people of Chios, not knowing what was going on' (8. 9. 3); 'The cause of all these things was government that was greedy and ambitious' (3. 82. 7).

Both in the orators and in Thucydides it is not only people who qualify as causes. 'The war was the cause of a whole lot of things' (Lysias 7. 6). 'The cause was not so much shortage of men as shortage of money' (Thucydides 1. 11).

I want to stress (and many more examples could be brought into play if necessary) the following. The early examples tend to pick out people or states of affairs as causes, *and* to specify some property belonging to them as that which makes them causes of the effect in question. Sometimes their possession of this property is put in the form of a proposition: 'the cause was that he [Pericles], being powerful in esteem and opinion and obviously quite incorruptible, commanded a willing people' (Thuc. 2. 65. 8).

Although some agent, in a very broad sense, is picked out as the

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[2] There is an illuminating discussion of the relation between 'aition' and 'cause' in Frede (1987). I agree with him that the idea of responsibility lies at the heart of the Greek idea of *aition*.

cause, it is common to specify something about the agent that makes him or it the cause. It is not necessarily something *done* by the agent that plays this role. It may be something neglected. Or it may be just some property of the agent, although in that case the Hippocratic definition shows that there should be some *change* in the property or in its relations such as to make it into a cause. This is a point that later persuaded Aristotle that Plato's Forms could not be causes: they never change. And when he came to discuss the causation of motion in the stars, he argued that the motion must be eternal because a first change would be necessary as a cause of the first movement, and there could be no first change in the relation between the mover and the moved.

That is all I need to say at the outset about the general use of the adjective *aitios* and the noun *aitia*. What I am aiming to stress is first the familiar point that to be a cause is normally to be in some sense an agent, whether personal or impersonal, and secondly the point that the agent normally acts under a particular description, or in a particular aspect, or through having some particular property. He or she or it acts *qua* being or having something or other. I want to go on to suggest, switching to Aristotelian terms, that we can understand Aristotle's causes as being related to each other in this way: we can understand the material, formal, and final causes as being different aspects of the efficient cause, or perhaps different kinds of efficient cause.

III

I turn at once to the final cause. The first full discussion of the final cause is in the famous passage of Socrates' autobiographical speech in Plato's *Phaedo*. It is too well known to need more than a brief comment here. Socrates describes how excited he had been in his youth by the theory of Anaxagoras, according to whom 'It is Mind [Reason, Nous] that puts everything in order and is the cause of everything.' If that is so, he thought, then Mind arranges each thing in the best possible way. 'So if anyone wants to find the cause (*aitia*), why a thing comes to be, or perishes, or *is*, what he has to find out is how it is best for it to be, or act, or be acted on.' He expected that Anaxagoras would 'give an account of what is best for the particular thing, and of the general good'. But of course Anaxagoras disappointed him, because he went on to mention

causes that omitted 'what is best', and specified only 'airs, ethers, waters, and such nonsense'.

Plato returns to the job left uncompleted by Anaxagoras in the *Timaeus*, where we find a full and detailed description of the construction of the world by Mind, always working with the intention of producing what is best. I shall emphasize a few points in this description, because there is abundant evidence that the *Timaeus* was well known to Aristotle, and did as much as any other single work of his predecessors to shape his own philosophy of nature. He disagreed with much of it, but he never escaped its influence.

The Mind that shapes the physical world is the mind of a divine Craftsman. The controversy that started up even among the first generation of Plato's students over whether this figure was a creature of myth introduced as a device of exposition or a part of Plato's serious theology need not distract us in the present context. The point is that the language used by Plato is the language of intention. The divine Craftsman figures out by reason what is best, given the initial conditions, and puts it into practice. He intends to produce a world that is as good and as beautiful as possible, and the world that Plato describes is the product of his reasoned intention.

From the beginning of Timaeus' speech in the dialogue, he stresses over and over again the beauty or goodness of the cosmos he is describing. Being good himself, the Craftsman wishes to make everything as good as possible. Taking over the visible material of the cosmos in a state of disorderly motion, he brought it into order, since only what is most beautiful befits one who is himself perfectly good. But nothing mindless is more beautiful than a thing with mind, and mind cannot exist without soul; reckoning thus he put a soul and a mind into the world, 'so that the work he created might be as beautiful as possible in nature and as good'.

It is noticeable in this passage that the beauty of the cosmos and the goodness of its maker are not inferred by argument: on the contrary, they are the premisses of an argument. From the assumption that the maker is good and his product is beautiful, Timaeus argues first that the world that is made must be copied from an eternal model, secondly that it is a living organism with a soul and a mind, and thirdly that it must be spherical, because this shape will make it 'ten thousand times more beautiful' than a less regular one would (33b).

The introduction of value—the good and the beautiful—into the

structure of the world and its contents is explained as being due to the reasoned intention of a divine Mind. If we accept the divine Craftsman at face value, there is no philosophical difficulty in understanding how the final cause operates. The Craftsman has a goal, to make the best possible material copy of the immaterial Form. The analysis of his work follows the pattern of the work of any human artist. He has a certain form in mind as his goal, and because he has that in mind he works in this way rather than that. He desires to achieve the goal, and arrives by the processes of reason at the belief that such-and-such means will be best for achieving this goal. Strictly speaking, it is his desiring the goal that is the cause (or the relevant part of the cause), but it is a small step from attributing the causation to the Craftsman's desiring it to attributing it to the goal itself as desired by him.

So we can say that the goal is the *aition* of the process of production, in spite of the fact that the goal is realized later in time than the process and we do not want to say that causes operate retroactively. The justification for this is that in artistic production the final cause is the significant aspect of the efficient cause. The Craftsman is *aitios*, and the particular aspects of his mind that bring about the state of affairs in question are that he *desires* and *intends* to achieve the goal, and *believes* that such-and-such means are the best way of achieving it. The important point is that his desiring and intending and believing are prior in time to the outcome, or at least contemporaneous with it.

The reasoning mind provides the paradigm for the operation of the final cause. Anaxagoras proposed it first and Plato fleshed it out in the *Phaedo* and *Timaeus*. The idioms 'in order that' and 'for the sake of' (or their Greek equivalents) were understood primarily from their use in the context of a reasoning mind. And I take it that that context is the standard one from which we too learn the use of these idioms.

Aristotle's analysis of intentional action in *de Motu Animalium* raises no problems at this level (although it does indeed raise problems with regard to the transmission of intention into action through the 'connate pneuma').[3]

Now we see that the movers of the animal are reasoning (*dianoia*) and *phantasia* and choice and wish and appetite. And all of these can be

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[3] See esp. Nussbaum (1978, Interpretive Essays 1, 4).

reduced to thought and desire. For both *phantasia* and sense perception hold the same place as thought, since all are concerned with making distinctions—though they differ from each other in ways we have discussed elsewhere. Wish and spiritedness (*thymos*) and appetite are all desire, and choice shares both in reasoning and in desire. So that the first mover is the object of desire and also of thought; not, however, every object of thought, but the end in the sphere of things that can be done. So it is a good of this sort that imparts movement, not everything noble. For in so far as something else is done for the sake of this, and in so far as it is an end of things that are for the sake of something else, thus far it imparts movement. And we must suppose that the apparent good ranks as a good . . . (*MA* 700^{b}17–29, trans. Nussbaum)

Aristotle takes the cause of animal movement to be the conjunction of its desire for an object and its thought or belief about the object: 'The first mover is the object of desire and also of thought.' He makes it clear that this is an intensional object, by adding that the *apparent* good ranks as a good. In animal movement, the external object acts as a (final) cause of movement by virtue of its being perceived or thought of as being good. Except in the case of involuntary movements, there is no causal link between the external object and the movement *except* through the desire and belief of the animal, which are the direct moving causes.

But then, to return to the *Timaeus*, if we take the Craftsman to be a device of exposition, as so many interpreters did and do, we lose the simple model of artistic production, and we have to confront the text with a quite different question: what is the cause of the well-adapted structure of material bodies, and how does it operate as a cause? That is a question that has to be tackled in relation to Aristotle, since his cosmos certainly has no purposive Craftsman, and is not constructed according to the intention of any Mind. What we have to do to make sense of Aristotle's teleology is to find a *substitute for Mind* as the agent in teleological processes and structures.

IV

Aristotle insists that the processes and structures of nature, sometimes at least, and in the most important aspects, are '*for the sake of* something'. Of course, as I have said, the collisions and

aggregations of the Atomists' atoms often achieve something recognizable as a goal—something that might have been intended, if there had been an intending mind. But if a thing is to be explained teleologically in a strict sense, it must be the case that it exists or takes place *in order to* attain the goal or *for the sake of* the goal. That is not true in the Atomists' theory.

What is to count as a goal? Natural processes have many outcomes. Why should we say that the heart pumps in order to distribute blood, rather than to make a rhythmic noise?[4] Again, since every animal dies in the end, why should we not say that its life processes are *for the sake of* death? Aristotle's answer was that the goal must be recognizably a *good*. In his defence of the thesis that nature works 'for the sake of something', he is more concerned to refute those who omitted this cause from their natural philosophy than to discover criteria for identifying the character in general of the 'something' that constitutes a natural end: he hardly questions the idea that it must be a good, but takes it for granted. (The *Timaeus* was surely in his mind all the time.) The cases that most interested him were the structures and functioning of the parts of animal bodies, and in these cases the good in question is clearly to be identified as the good of the animal itself, and (except in the case of man, whose life involves moral and intellectual goals as well as physical ones) is always related to the animal's capacity for surviving in its environment. What these goods are can be picked out without much theoretical effort—the identification of food and predators, the ability to move appropriately, reproductive capacity, digestion of food, and so on. Sometimes, it is true, there is difficulty in identifying the final cause of some natural structure or process: the use of breathing, for example, was a matter of debate until the time of Galen and beyond. It was not part of Aristotle's thesis that everything that exists or happens in nature is directed towards some good end. But in general the good achieved or aimed at by each of the parts of the body was easily enough recognized.[5]

[4] Hempel (1966: 89–108).

[5] Gotthelf (1988) argues that the primary feature of a natural goal is that it is an actuality, not that it is a good. This is in opposition to Kahn (1985) and Cooper (1987), both of whom base their analysis on Woodfield (1976). But Gotthelf writes (p. 115): 'I of course agree that for Aristotle a natural goal or end is always something good and is a (final) cause in virtue of that about it which makes it good, but I do not believe that the fundamental account of what it is for something

But although it is often possible to identify without difficulty the goals or ends of natural processes and structures, how are we to justify Aristotle's claim that the ends are *causes*? The end or goal of a process is in the future in relation to the process. How can the goal be a cause of the process which precedes it? This problem can be solved without much difficulty when intentional agency is involved, as I have said about the *Timaeus* and the *de Motu Animalium*. But if there is no agent capable of belief and desire, as in the case of the natural processes that Aristotle wished to explain teleologically, how is the chronological objection to be avoided?

It will help to quote a passage from Aristotle's *de Partibus Animalium* as an example:

In birds, what is called the beak is the mouth; this is what they have instead of lips and teeth. It differs according to its uses and services. The birds called 'crook-taloned' all have a crook-shaped beak, because they feed on flesh and eat no grain or fruit; a beak of this nature is more forceful and useful for mastering prey. Their offensive weapon is in this and in their claws, and for this reason they also have exceptionally curved claws. Each of the others has a beak that is useful for their life-style: for example, in woodpeckers it is strong and hard, also in crows and crow-like birds; in small birds it is delicate, for picking up grain and catching tiny creatures. Herb-eaters and those that live by marshes, such as those that swim and are web-footed, have various kinds of serviceable beak, some of them being flat, because with such a beak it is easy to dig—just like the pig, which is also a root-eater, to take an example from the quadrupeds. (3. 1. 662ª33–ᵇ14)

Aristotle claims that the raptors have crook-shaped beaks *because* they feed on flesh; Empedocles (and Lucretius) would say they feed on flesh *because* they have beaks of that shape. How can the usefulness of the beak for a particular goal be the *cause* of the shape of the beak?

Evolutionary biologists are in a position to answer this question

to be an end for Aristotle must—or indeed should—refer to the goodness of that end'. Since I am concerned with the role of the end as final cause, I think I can ignore this difference of opinion. But it may be remarked that potentiality is *defined* by its relation to its actuality. I am not clear, therefore, that anything is being said, beyond a repetition of the definition, when it is said that the natural end is actuality.

by appealing to the survival value of this type of beak for raptors. Those birds which had beaks of the most suitable shape in given conditions had an advantage that enabled them, rather than their weaker competitors, to survive and reproduce in these conditions, and so to pass on this advantageous feature to succeeding generations. The beak's usefulness in this way *explains* why the hawk has such a beak; that is to say, it explains why beaks of this kind are found in the present hawk population. It is a *cause* of hawks' having such beaks, because it enabled the various species of raptors to survive and reproduce. The explanation may be counted as a teleological one, but it does not involve positing a cause that lies in the future with respect to what is caused.

Aristotle, however, was not an evolutionist; he held that biological species are eternal, and eternally the same. So the pattern of explanation that appeals to the evolution of species was not open to him. What could he substitute for the reasoning and planning mind of the Craftsman God?

On the face of it, two possible lines suggest themselves. The first is that his teleology is after all no more than an 'as if' teleology, a way of studying natural processes and organizing our researches, rather than a claim that final cause and effect are connected in some real way in nature.[6] There is much to be said about this approach. But if a workable alternative can be found, that would seem to be preferable, since Aristotle himself lists his types of causes in a manner that suggests that they have something like the same status in reality.

The second line of approach, which used to be the more common one, is to attribute to nature itself, not a reasoning mind, but an unconscious tendency to replicate the action of a reasoning mind. Such a claim can take two forms: a generalizing form and a specific one. The first would make nature into a unified superagent, overseeing and directing the whole world-order. But there is very little if any solid evidence for this in the text.

The second is to speak of 'natures' in the plural. According to this idea, each embryonic member of a species is endowed with its own nature, consisting of an irreducible potentiality for developing form of a certain kind, the kind proper to its species.[7] Given suit-

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[6] Esp. Wieland (1962: 256 ff.).
[7] See Gotthelf (1987) and other writings of his.

able nurture, it will go through the right processes and develop the right structures so as to achieve this goal. Certainly, it has no conscious desire for this goal and no reasoned belief that such-and-such a process or structure will enable it to achieve the goal. It is just the case that, because of its nature, its innate potentiality for form, it will grow through these processes and develop these structures so as to achieve this goal.

This is much more solidly supported in the text, especially at the beginning of book 2 of the *Physics*. There is the well-known comparison between nature and *techne* (2. 1. 192ᵇ14–27). Nature is a source and a cause of being moved and of being at rest, in an object to which it belongs primarily and not accidentally. He illustrates the latter distinction with the example of a doctor who cures himself. That is a case in which the cause of change just happens to be in the object of change—normally the doctor is a cause of change in someone else—but in natural objects the cause of change is essentially in the object itself.

But this analysis is not wholly satisfactory. The difficulty is that nature must be identified as a potentiality, and potentiality is always secondary to actuality. In a couple of lines at the end of chapter 1, Aristotle acknowledges that there is more to be said: 'What grows, then? Not that *from* which, but that *to* which. So form is nature. But form and nature are spoken of in two ways: for privation is form, in a way.'[8]

But in *what* way is privation a kind of form? Surely this is not enough to override Aristotle's general principle of the priority of actuality over potentiality. His point may be sufficient to rebut the materialists, who would want to explain the growth of a formed and complex substance out of simpler material elements. Aristotle is pointing out that his theory of natural growth, although it cannot locate a fully developed form in an embryo to account for its ordered development, can nevertheless locate *some* degree of form there, and therefore does not collapse into materialism. The form of the embryo, however, is still only a privation and a potentiality. Its development is going to be towards the goal of specific form, but the goal that it will achieve in the future cannot be the cause of its development now.

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[8] τί οὖν φύεται; οὐχὶ ἐξ οὗ, ἀλλ' εἰς ὅ. ἡ ἄρα μορφὴ φύσις. ἡ δὲ μορφὴ καὶ ἡ φύσις διχῶς λέγεται· καὶ γὰρ ἡ στέρησις εἶδός πώς ἐστιν (193ᵇ17–20).

V

Recently there have been attempts at a new kind of analysis of the final cause in Aristotle's biology that I would like to follow up. They bear more resemblance to the evolutionists' views than the theories I have just mentioned. Here is a quotation from David Balme's most recent essay on the subject:

Just as the very existence of a species requires no deeper cause than the survival of those animals that best fit into a niche, so the preservation of a species requires only the survival of the fit. . . . The real problem is what ensures the reproduction of the individual: how is it that each fit animal produces equally fit offspring, fit to survive? Given that, the rest will follow. This is the problem that *De generatione animalium* deals with . . . All the teleological explanations of the animals' parts in *De partibus animalium*, at whatever level of generality they occur, refer to this individual development and to the individual's advantage: *this* is what benefits it in the circumstances.[9]

Let us return to the example of the raptors and their well-adapted beaks. If we ask why this particular hawk has a curved beak, we may give a teleological answer, 'In order to get a living by catching field-mice and tearing their flesh'. We are not committed to saying that this particular specimen grew such a beak *with a view* to future acts of catching and tearing. Any given specimen has this equipment because its sire had it, survived by its means, and passed it on through the reproductive process. The well-adapted beak is a *cause* (an efficient cause) of the production of the next generation, and it is so for no other reason than that it is an effective way of achieving the goal of getting the food necessary for survival. If we say that hawks as a class have curved beaks *for the sake of* catching and tearing up rodents, it is in this way that we must explicate the idea. As in the case of intentional action, this is to make the final cause into an aspect of the efficient cause. The sire is the *aition* of this characteristic of the offspring, having survived himself through its means. Being a good for the sire, it was a cause of his survival, and he was the cause of its reproduction in his offspring.

I quote from the last chapter of Andrew Woodfield's *Teleology*:

Standardly, the teleological description is a tenseless general statement about *types* of organs. 'The heart beats in order to circulate the blood'

9 Balme (1987*b*: 280).

is about hearts in general, of whatever individual of whatever species. . . . But it is possible to ask functional 'Why?' questions about individual specimens. This heart beats because *other* hearts have beaten in the past and have contributed to the blood circulation of their owners who were the ancestors of the owner of this heart. Furthermore, it is possible to give an 'ontogenetic' functional explanation of why a particular heart beats. The teleological description would say that this heart beats because its own past beating has benefited the owner by helping him to survive. Functional teleological descriptions sum up a number of historical facts by fudging time-references, thereby creating the illusion that the cause of the present beating is the fact that it will have a beneficial effect. (208–9)

I will come back to what Woodfield calls an 'ontogenetic' functional explanation shortly, in a different context. But the word 'illusion' requires an immediate comment. I suppose it is justified precisely in the context in which Woodfield uses it. And this is the exact point at which Aristotle separates himself from the materialists. He criticizes Anaxagoras (*PA* 687^{a}6–11) for saying that it is because man has hands that he is the most intelligent of the animals, whereas he should say that it is because he is the most intelligent that he has hands. The truth is that at the individual level Anaxagoras was more right than Aristotle: each individual baby finds out what to do with its hands and becomes clever with them. It is an illusion that the baby has hands *in order to* use knives and computers. But at the type level Aristotle is right too: by summing up the generations we can legitimately say that man (the species) has hands for using tools.

The important thing is that even if the times are 'fudged' and there is an element of illusion, there is a real causality at work here. And it can work in Aristotle's non-evolutionary cosmology in much the same way as in an evolutionary one. There is a goal, which is a part of or a means to the good for this type of animal, and *because* it is good the means to achieve it are passed on through the generations. The good is a real cause, in nature, of the structure of animals of this type. What is not true is that this individual young person's future technological expertise is a cause of *his* having hands, or that the future individual act of catching a mouse is a cause of *this* hawk's growth of a hooked beak.

In *Physics* 2. 6. 198^{a}24 Aristotle explains how three of the four causes often coincide in one in the biological world. The three that

coincide are efficient, formal, and final. The efficient cause is the parent, and he is a parent *qua* instance of the form that itself represents the good (i.e. the final cause) for a creature with that way of life. In *de Generatione Animalium* 5. 1, on the other hand, the efficient cause is grouped with the material cause to explain some of the *pathēmata* of the parts of animals.[10] There is the well-known example of the colour of the eyes of human beings. The possession of eyes is due to the form of the species and their contribution to the manner of life of the species (formal and final cause). But as to the colours, he says, 'when we come to consider such conditions as these, we must not suppose that the same sort of cause is operative as before . . . In some cases the condition has nothing to do with the *logos* of the animal's being: rather, we must take it to come about by necessity and refer the causes to the matter and the moving cause' (778^a29-^b1).

In the last chapter of the *Meteorologica*, he makes a similar point, not this time about the difference between essential features like eyes and variables like eye-colour, but between the more elementary biological tissues and more complex parts. The homoiomerous tissues, such as flesh, bone, hair, sinew, etc., are produced by causes such as heat and cold and their effects on matter (tension, ductility, fragmentability, hardness, softness, and so on). 'But no one', he continues, 'would suppose that this was the case with the anhomoiomerous parts, which they in turn compose, such as head, hand, or foot.' He sums up the point: 'We know the cause and nature of a thing when we understand either the matter, or the *logos*; and best when we understand *both* [of these] causes of its coming into being and perishing and whence is the source of motion.'[11] The last clause should be taken to mean 'from which of these two, the matter or the *logos*, is the source of motion'.

The point of quoting these passages is to show Aristotle linking the efficient cause sometimes with the material cause, sometimes with the *logos*, or formal cause. He is aware that both the matter and the *logos* function as agents by virtue of being subsumed in the efficient cause. He is unfortunately less explicit about the manner

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[10] For an extended account of this grouping of the causes, see Lewis (1988).

[11] οὕτω γὰρ ἴσμεν ἕκαστον διὰ τί καὶ τί ἐστιν, ἐὰν ἢ τὴν ὕλην ἢ τὸν λόγον ἔχωμεν, μάλιστα δ' ὅταν ἄμφω τῆς τε γενέσεως καὶ φθορᾶς, καὶ πόθεν ἡ ἀρχὴ τῆς κινήσεως (*Mete.* 4. 390^b17–19).

in which the final cause is a cause. He is clear enough in cases where there is an intention, and he often compares the operations of nature with the productions of techne. But he never quite states the point in so many words. The words I am offering him are something like the following.

This kind of animal has such-and-such a manner of life: it is defined by having the capacity for living this kind of life (that is the same as to say: it is defined by having a soul with these capacities). Now this kind of physical part is necessary, or good, or at least better than anything else, for leading this kind of life. Hence the possession of this part enables its possessor to survive and reproduce. Through the processes of heredity, which he explains in *de Generatione Animalium*, each of its (normal) offspring, from generation to generation, is equipped with this part. The cause of this individual's possession of this part, then, is the fact that this part is good for this *kind* of animal and therefore was a part of the form inherited from the parent.

It may be objected that although this may be perhaps a plausible analysis of the role of the final cause in the coming-to-be of natural things, it will not do as an analysis of the cause of their *being*.[12]

This is a difficult question to answer. It may be that the only answer is to be found in the famous lines of *de Generatione et Corruptione* B10:

In all things, as we affirm, nature always strives after the better. Now being ... is better than not-being; but not all things can possess being, since they are too far removed from the principle. God therefore adopted the remaining alternative, and fulfilled the perfection of the universe by making coming-to-be uninterrupted; for the greatest possible coherence would thus be secured to being, because that coming-to-be should itself come-to-be perpetually is the closest approximation to eternal being.[13]

One might reasonably conclude from this that there *are* no further causes of being to be sought, beyond the causes of perpetual coming-to-be. This still leaves another question unanswered: why are

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[12] I owe the objection to John Cooper.

[13] ἐπεὶ γὰρ ἐν ἅπασιν ἀεὶ τοῦ βελτίονος ὀρέγεσθαί φαμεν τὴν φύσιν, βέλτιον δὲ τὸ εἶναι ἢ τὸ μὴ εἶναι ... τοῦτο δ' ἀδύνατον ἐν ἅπασιν ὑπάρχειν διὰ τὸ πόρρω τῆς ἀρχῆς ἀφίστασθαι, τῷ λειπομένῳ τρόπῳ συνεπλήρωσε τὸ ὅλον ὁ θεός, ἐνδελεχῆ ποιήσας τὴν γένεσιν· οὕτω γὰρ ἂν μάλιστα συνείροιτο τὸ εἶναι διὰ τὸ ἐγγύτατα εἶναι τῆς οὐσίας τὸ γίνεσθαι ἀεὶ καὶ τὴν γένεσιν (*GC* 336ᵇ27 ff.).

there only just *these* natural species—the ones that do reproduce perpetually? The beginnings of an answer to this question are attempted in what follows.

VI

The last part of this chapter is more heretical. Most recent interpreters of Aristotle have taken the view that when he imports final causes into the natural world he means to confine them to living species. I have tried to show that there is a way in which Aristotle's final cause can still function as a cause in his biology, in spite of his having dropped Plato's Craftsman and his team of subordinate gods. If I am right, it is possible to attribute to him more than an 'as if' teleology, and to make of the final cause more than a heuristic aid to biological research.

I want to suggest now that it may be possible to extend a similar analysis to the cosmos as a whole, in the following way. It is true, of course, that Aristotle's cosmos was not generated by a Craftsman, and indeed had no origin at all. So when we talk about causes of the structure of the cosmos as a whole, we are not speaking of the processes of formation of the cosmos, but only of its permanent functioning. Plato described the cosmos as an organism—a living creature. Consequently, its parts could be regarded as being related to each and the whole as the parts of an animal are related. Aristotle never called the cosmos an organism. It seems to be ruled out by his view that organisms are substances, and substances do not have substances as parts. Nevertheless, the Aristotelian cosmos is certainly a unity of a sort, and it has an ordered structure. I am not talking about the arrangement of the heavenly spheres and their relation to the prime mover, although they are of course part of it; I mean that the beings and processes of the sublunary world also exhibit an order which is not random, and which demands some causal explanation.

Aristotle makes it clear that there is such a cosmic order in the well-known passage in *Metaphysics* Λ (1075ª11 ff.).

We must inquire too in which of two ways the good and the best are present in the whole universe. Are they something separate and self-

contained, or are they the order of the whole? Or are they both, as in an army? The good of an army is both in its order, and its commander, and especially the latter, since he is not there because of the order, but it because of him.

Everything is somehow held together in an order, though not all similarly—sea creatures, birds, plants. And it is not so arranged that one is nothing to the other: there *is* a connection. Everything is ordered together towards a single end; but in the manner in which in a household the free are least able to act as chance may take them, but rather for them everything, or most things, are subject to order, whereas slaves and animals contribute least to the community and much at the whim of chance. For the nature of each of them acts as a principle of this kind.

I mean, for example, that everything [sc. in the world] must at least come to be decomposed into elements, and there exist other things, in which all share so as to contribute to the whole.   (1075^a11–25)

The question I want to ask is this: are we to regard the good as being in any sense a *cause* of the order that Aristotle finds in the cosmos? I think that if we apply the same kind of analysis as I am suggesting for the final cause in biology, we can make it work. In the case of biology, the final cause worked from one generation to the next. In the cosmos as a whole we can regard the final cause as producing permanence through continuity. I mean that the relation of one species to the others, the relation of the elements to each other, the relation of hot and cold and dry and wet to each other, all under the regular influence of the heavens through the movement of the sun—all these relations are causes of a balance that ensures the preservation of the cosmos. I am suggesting the same logic that Woodfield offers for the explanation of why an individual heart beats, in the passage I quoted: 'this heart beats because its own past beating has benefited the owner by helping him to survive'. Aristotle might say: 'There is good order in the cosmos now because that same good order in the past has benefited the cosmos by helping it to survive.'

There are plenty of indications in Aristotle's works that the proper relation between kinds of things was regarded by him as an enduring feature of the sublunary world. For example, in the *Metaphysics* (1076^a1, 1090^b13) he twice criticizes those Platonists who made *numbers* the first principles of things on the ground that they made nature 'episodic', like a bad tragedy: the parts contribute

nothing to each other. In the *Politics* (1290ᵇ21) he compares the
natural kinds with the different segments of a *polis*, suggesting a
kind of principle of plenitude at work: there are so many varieties
of parts of a *polis* and so many varieties of parts of an animal; there
are as many possible kinds of *polis* and of animals as there are kinds
of parts. And in a notorious passage (1256ᵇ15) he suggests, perhaps
more extravagantly than he meant, that plants are for the sake of
animals and lower species of animals are for the sake of man. Both
passages imply an ordering of the biological species.

In an article published some years ago I argued that in *Physics*
2. 8 the orthodox modern interpretation of the rainfall example
gets Aristotle wrong, and Simplicius and Philoponus were right.[14]
Aristotle wants to say that exceptional summer rainfall has
nothing but a material–efficient cause, but regular winter rainfall
has *also* a final–efficient cause; and the pre-Socratic materialists
were wrong to deny the latter. Of course, regular winter rainfall
has a material–efficient cause too; that is not inconsistent with its
having a final–efficient cause. That is the same point that Plato
makes in the *Timaeus*, by saying that there is Necessity and there
is Reason, and Reason persuades Necessity to work for the
good.

What would be needed in the text to clinch the point is a set of
counterfactuals: *if* such-and-such a feature of the cosmos were out
of balance, then the cosmic order would have been destroyed. The
nearest we get to this, I think, is Aristotle's constant insistence on
opposites and the interchange between them. In *de Caelo* it is the
opposition between heavy and light elements, and the need for air
and water to mediate between the extremes. The unspoken claim is
that without balance the cosmos would either have collapsed or
split. In *de Generatione et Corruptione* the balance is between hot
and cold and dry and wet: again, the unspoken claim is that without
such a balance the cosmos would have been either burnt up or
frozen to death, either flooded or destroyed by drought.

Of course, I am not suggesting that there is nothing in Aristotle's
cosmos that is to be explained wholly by material–efficient causes,
and that there is a teleological account to be given of everything. It
is plain enough that he did not make so strong a claim.

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[14] Furley (1989*a*). See now Sedley (1991)—but I am not yet persuaded that final
causes in Aristotle's cosmos work essentially for the good of Man.

VII

What, then, if something like this is true, was the difference between Aristotle and the Atomists or Empedocles? The latter also put forward a theory that it was the benefits of particular material structures that enabled certain creatures to survive and reproduce, and so brought about a universally well-adapted population.

Irwin argues that the crucial difference lies precisely in the fact that for Aristotle the final cause is involved in the efficient causation of the beneficial structures, whereas for Empedocles (and perhaps the Atomists?) the efficient causation is a matter of luck.[15] That is one way of putting it. One might alternatively say that we have a contrast between top-down causation and bottom-up causation—a contrast that lies at the centre of the division between the Aristotelian and the Atomistic tradition.[16] The final cause is inseparably embedded in Form: the good of a structure or process, in Aristotle's view, is to be found in its contribution to the persistence of the more complex form. It is as a part of essential form that it is transmitted from past to future, from one generation to another, or from one cycle of seasons to another. The good, as an aspect of form—the principle that organizes those motions which constitute the direct efficient causes of natural change—is an indispensable part of the explanation of what goes on in the natural world. That, Aristotle would argue, is what is missing from those theories which try to explain everything from the bottom up—from the motions of material elements alone.

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[15] Irwin (1988: 105).   [16] This is discussed further in Furley (1989*b*).

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Reason, Moral Virtue, and Moral Value

JOHN M. COOPER

In moral philosophy Aristotle is well known to stand for the primacy of character, judgement, and perceptiveness. For him, the virtues of character and the nuanced appreciation they bring of the multiplicity of legitimate claims there always are on one's attention are the central phenomena for ethics. For many, this is an appealing view. But Aristotle's theory of the virtues is constructed upon an elaborate and well-articulated basis in psychological theory. He approaches the question what the virtues are and what of value they contribute to a human life through the postulation and analysis of several psychological capacities that he argues human beings by their nature all possess. It is a person's use of these capacities that determines how their life goes, whether for better or for worse. In order properly to understand Aristotle's theory of the virtues one must develop it explicitly from within the context of his psychological theory. I attempt to do this in what follows. As a result I am able to offer in conclusion some thoughts about what precisely that 'nobility' or 'fineness' or 'beauty' in action is that Aristotle makes the constant goal of morally virtuous action as such, and how its pursuit fits together with the other concerns that also motivate the morally virtuous agent.

RATIONALITY AND THE VIRTUES

We should begin by reminding ourselves that Aristotle recognizes not one but three distinct sorts of virtues (ἀρεταί). He claims that our specifically human nature makes us capable of acquiring all three, anyhow in principle. Each is a perfection, in some way, of a certain single, but ramified, ability that he takes to be fundamental

to and distinctive of the human species. His name for this capacity,
or for the 'part' of the soul it constitutes, is τὸ λόγον ἔχον—the
rational power, the ability to reason. Two types of virtue he de-
scribes as belonging to this ability in a straightforward way: they are
perfections of our capacity actually to think thoughts in the course
of reasoning, and so they belong to reason 'in itself'.[1] These are the
virtues of theoretical and practical reasoning. The third, however,
belongs to our ability to reason in what is obviously an extended
sense of that phrase.

This is the perfection of a capacity that Aristotle follows Plato in
the *Republic* in attributing to human beings—a capacity to experi-
ence desires (ὀρέξεις) that are not, strictly speaking, exercises of
reason at all. Experiencing *these* desires does not consist in having
(reasoned) thoughts, nor are they motivational states that depend
simply and directly upon having any such thoughts. For example,
we experience appetitive desires such as thirst, understood not as
the familiar bodily discomfort caused by the physiological need for
water but rather as a fully completed *desire for water* (or other
liquid), or for the pleasure of drinking some, that is somehow
caused by that need. These physiologically based, appetitive de-
sires are examples of what Aristotle counts as non-reasoning or
non-rational desires, ἄλογοι ὀρέξεις. None the less, Aristotle calls
the capacity for such desires that human beings (but not other
animals) have a rational one because it is capable of being rendered
obedient to the rational power in the strict sense of the word.[2] This
means two things. First, it can happen, and is in an important sense
natural, Aristotle thinks, that a person's tendencies to experience
these desires come to reflect and be shaped by, and so to follow, his
reasoned judgements about what is *worth* caring about, doing, and
experiencing. Secondly, and more strongly, these reasoned judge-
ments that a person's non-reasoned desires follow can themselves
come to conform to the substantive standards and requirements of
reason as correctly employed. When that double condition is real-
ized, then the desires that a person experiences that are in them-

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[1] They belong to the rational power (the λόγον ἔχον) ὡς ἔχον καὶ διανοούμενον, *EN*
I. 7. 1098ᵃ4–5, or to what has reason κυρίως καὶ ἐν αὐτῷ, I. 13. 1103ᵃ2.

[2] It is λόγον ἔχον in the sense (an extended one) that it can, or does under ideal
natural conditions, obey reason, ὡς ἐπιπειθὲς λόγῳ (*EN* I. 7. 1098ᵃ4, explained at some
length at I. 13. 1102ᵇ25–31)—the same sense, he adds at 1102ᵇ31–1103ᵃ3, in which
one hears and heeds the advice of a friend or one's father (τὸ δ' ὥσπερ τοῦ πατρὸς
ἀκουστικόν τι, 1103ᵃ3).

selves non-rational can, in an extended sense of the word, none the less also be correctly described as rational activities, exercises of our ability to reason. Under those conditions reason is being exercised in two distinct spheres, first of all 'in itself' (ἐν αὐτῷ, 1103ᵃ2) (in so far as we judge, in accordance with reason's own standards, that something is worth wanting in this appetitive way), but additionally *in* the appetitive desire itself. The appetitive desire too gets counted as an exercise of reason, since it has the character and content that it does precisely because it does follow reason.

When the capacity to experience non-rational desires is in this way under the control of one's reason, it is what Aristotle calls practical reason that has control—reason as calculative and deliberative (τὸ λογιστικόν, *EN* 6. 1. 1139ᵃ14) or engaged in thinking about action (τοῦ πρακτικοῦ καὶ διανοητικοῦ, 1139ᵃ29–30). It is by being obedient to this part or aspect of reason (in the narrow sense) that the capacity to experience non-rational desires itself qualifies as a rational power. Aristotle holds that the virtuous condition of the non-rational desires presupposes that the practical reason that they are obedient to itself possesses its own proper virtue, practical wisdom or φρόνησις.[3] Since on Aristotle's view the human virtues are all perfections of our nature *as rational*, it is relatively easy, given what I have said so far, to understand why he holds this. A person whose reasoned view about what is worth caring about, doing, and experiencing was fully reflected in the way she experienced non-rational desires no doubt *could* be said, in a way, to have non-rational desires controlled by and obedient to her reason, even if her reasoned view was mistaken or inadequate. But having non-rational desires under rational control in this minimal sense does not bring them to a state of perfection as *exercises of reason*, and so does not constitute the state in which they have attained the virtue appropriate to them. As a rational capacity in the extended sense I have explained, the capacity for non-rational desire would be continuously subject to further improvement, until the reason it is controlled by itself fully meets all the standards appropriate for the use of reason in this context. And since Aristotle calls the virtues of the non-rationally desiring part of our nature collectively 'moral

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[3] Moral virtue, the virtuous condition of the non-rational desires, lies in a mean ὡρισμένη λόγῳ καὶ ᾧ ἂν ὁ φρόνιμος ὁρίσειεν, 2. 6. 1107ᵃ1; one cannot have the moral virtues without at the same time having practical wisdom, 6. 13. 1144ᵇ31–2.

virtue' or 'virtue of character' (ἠθικὴ ἀρετή, 1103ᵃ5, 14–15), this
amounts to saying that moral virtue (though it is a perfectly distinct
psychological state or condition) presupposes and is dependent
upon the virtues of practical reason, the virtues of the mind that he
calls collectively 'practical wisdom' (φρόνησις).

NON-RATIONAL DESIRES

In what follows I want to discuss in some detail these non-rational
desires, in the control over which by a practical reason possessing
its own proper virtue, moral virtue according to Aristotle consists.
We should begin by recalling that Aristotle recognizes other de-
sires besides the non-rational types of desire here in question.[4] This
is already clear in the passage of *Nicomachean Ethics* I where he
formally introduces and argues for the existence of the non-rational
ones. For there (1. 13. 1102ᵇ13–25) he describes strong-willed (or
continent) and weak-willed (or incontinent) persons (οἱ ἐγκρατεῖς
and οἱ ἀκρατεῖς), on the occasions when they give in to or, respec-
tively, refuse to act upon temptation, as experiencing impulses
(ὁρμαί) that go in opposite directions (ἐπὶ τἀναντία, 1102ᵇ21).[5] One

[4] See my article, 'Some Remarks on Aristotle's Moral Psychology', *Southern
Journal of Philosophy*, 27 (1988), suppl., 25–42, esp. sects. II–IV, pp. 27–34.

[5] Strictly speaking, Aristotle only says here that the impulses of *weak*-willed
persons go ἐπὶ τἀναντία, but what he says about both the weak- and the strong-willed
just before, 1102ᵇ14–18, shows that he thinks the same of the strong-willed. The fact
that in this phrase Aristotle explicitly mentions only the weak-willed perhaps en-
couraged the erroneous interpretation of Burnet (*The Ethics of Aristotle* (London,
1900), 61) and other older commentators, that the impulses of the weak-willed
(namely, their non-rational desires) go opposite to their reason's dictates. But
Gauthier is right (*Aristote: 'L'Éthique à Nicomaque'* (Louvain, 1959, 1970), ii. 95–6)
to reject that interpretation as, in the context, very far-fetched, and certainly not in
line with Aristotle's usual view, according to which some of what he here calls ὁρμαί
are produced by reason itself: *EE* 8. 2. 1247ᵇ18–19, which Gauthier cites, clearly
exhibits this usual view (ἆρ' οὐκ ἔνεισιν ὁρμαί ἐν τῇ ψυχῇ αἱ μὲν ἀπὸ λογισμοῦ αἱ δὲ ἀπὸ
ὀρέξεως ἀλόγου). *EE* 2. 8. 1224ᵃ32–3, which Gauthier cites as a parallel to this *EN*
phrase, is, however, not without difficulties of its own. With the (possibly confused)
MS text there, it looks at first sight as if the αὐτῷ should be taken with ἐναντίας (the
strong- and weak-willed person each acts 'having impulses opposed to himself'), and
that would give essentially the sense Burnet, not Gauthier, wanted to find in the *EN*
passage. (That is how Woods translates it in *Aristotle's 'Eudemian Ethics'* (Oxford,
1982); likewise Décarie, *Aristote: 'Éthique à Eudème'* (Paris, 1978).) However,
Aristotle is here setting up a difficulty (namely, that it looks as if both the strong-
and the weak-willed act under compulsion and so not voluntarily), to which he goes
on to reply. In replying he points out (ᵇ5 8) that, by his own earlier definition,

of the these ὁϱμαί is described as coming from the capacity for non-rational desire and as opposing reason and going against it (ἐναντιούμενον καὶ ἀντιβαῖνον, 1102ᵇ24–5). The other impulse, then, is being conceived as coming from reason itself (this is made explicit in a parallel passage of *EE*, 1247ʰ18–19, quoted in n. 5). And since Aristotle's whole point here is to argue for a special non-rational part or aspect of the human soul (1102ᵇ13–14), a capacity that is part of human nature itself and so is present in every human being, he cannot be supposing that the impulse 'coming from reason' is just some or other non-rational desire that reason has managed to capture and use in order to achieve its own purposes. It must be a *sui generis* impulse, a psychic movement towards action that is generated by practical reasoning and judgement themselves, an impulse that goes in support of the course of action one has decided is best.[6] In the *Ethics* and elsewhere Aristotle regularly uses the term βούλησις (wish, or rational wish, as it is generally translated) as his semi-technical name for this kind of desire.

In *EN* 1. 13 Aristotle does not pause to delineate the non-rational desires or distinguish different types of them from one another. He speaks of them only vaguely, as τὸ ἐπιθυμητικὸν καὶ ὅλως ὀρεκτικόν and as non-rational but capable of being persuaded by and obedient to reason. Thus at the end of the chapter (1103ᵃ3 ff.) he says simply that the (human) virtues fall into two

compulsion requires that what causes (or prevents) movement should come from outside the thing being subjected to compulsion, whereas in *both* these agents what causes the action is a ὁϱμή inside themselves: ἐν τῷ ἀκρατεῖ καὶ ἐγκρατεῖ ἡ καθ' αὑτὸν ὁϱμὴ ἐνοῦσα ἄγει (ἄμφω γὰρ ἔχει) (ᵇ8–10). (So the continent agent, in acting against his appetite and on his λογισμός, cf. ᵇ22–3, acts on a ὁϱμή, or impulse.) This confirms that Gauthier is right about Aristotle's usual view, but it also strongly suggests that Woods and Décarie are wrong to take αὐτῷ with ἐναντίας at ᵃ33. For the only justification in what precedes for saying that strong- and weak-willed agents have ἄμφω [ὁϱμαί] is the reference to ἐναντίας ὁϱμάς of ᵃ32–3   thus forcing on the earlier passage Gauthier's sense (that the strong- and weak-willed person each acts 'having in himself opposite impulses'). (That is how Solomon took it in the Oxford translation.) (In that case, one must take αὐτῷ as a dative of interest, if it is not to be emended to αὐτῶν.) In any event, *MM* 2. 4. 1200ᵇ1–4 provides a close and precise enough parallel, if any is needed, in support of Gauthier's way of taking ἐπὶ τἀναντία in the *EN* text. Ross translates it in this way in his Oxford translation (first published 1925), and nearly all more recent translators agree (not, however, Rackham or Dirlmeier).

[6] On this *sui generis* rational kind of desire, see further below pp. 122 ff., and Cooper, 'Some Remarks on Aristotle's Moral Psychology', 28–32.

groups, depending upon in which of two senses of the word the part
or capacity of the soul to which they belong is 'rational'. The virtues
belonging to our ability to reason in the narrow or strict sense I
have distinguished above are called intellectual (διανοητικαί) ones,
while the virtues belonging to non-rational desire—a rational 'part'
in the extended sense of the word—are called 'moral' or 'of charac-
ter'. Nor in discussing the moral virtues in general in book 2, or in
detail in books 3–5, does Aristotle go into such details. Partly this
is because in that discussion (beginning from 2. 5) he shifts his
attention from non-rational desire as such to the broader category
of πάθος (passion or emotion), which he takes rather for granted,
leaving its relations to ὄρεξις (desire) quite undeveloped.[7] In fact,
however, as one can see from a number of passages in other works,
as well as in the *Nicomachean Ethics*, Aristotle seems throughout
his career to have accepted from Plato's account of the human soul
in the *Republic* the division of our non-rational desires into two
types, appetitive and spirited (ἐπιθυμία and θυμός).[8] Since I wish in
what follows to argue that this division plays an important, though
often somewhat submerged, role in Aristotle's theory of moral
virtue in the *Ethics*, I want next to discuss in some detail Aristotle's
adoption, and adaptation, of this Platonic theory, paying special
attention to the main passages in the *Ethics* where he announces
and applies it explicitly.[9]

[7] For a discussion of these matters one must go to *Rhet.* 2. 2–11. See my 'Rhetoric,
Dialectic and the Passions', *Oxford Studies in Ancient Philosophy*, 11 (1993),
175–98.

[8] See Cooper, 'Some Remarks on Aristotle's Moral Psychology', 30 and n. 3. On
Plato's version of this theory, see my 'Plato's Theory of Human Motivation', *History
of Philosophy Quarterly*, 1 (1984), 3–21.

[9] The *Politics*, too, gives clear evidence of Aristotle's commitment to the 'tripar-
tite' account of desires. See 7. 7, where in discussing what sorts of people the citizens
of his best state should optimally be, Aristotle maintains (1327ᵇ36–8) that a citizen
has to have a good mix of both spirit (θυμός) and intelligence (διάνοια) in order to be
led towards virtue by the laws; and he traces the important virtue of friendship to the
spirited capacity of the soul. Again, in 7. 15 in discussing the early training of these
citizens, he speaks explicitly of both θυμός and ἐπιθυμία as present from birth and
needing appropriate training, so that the mind (as 'ruler') can develop properly. (He
speaks here, somewhat anomalously, of βούλησις as also present from birth, while
reason—λόγος—emerges only later: on his usual view, this could be at best some
inchoate condition of susceptibility for reasoned desires.) Finally, in 3. 16. 1287ᵃ30–
2 he says that if not law, i.e. reason (νοῦς), but men rule in a city, one opens the door
to 'bestial' abuses: appetites (ἐπιθυμία) have 'bestial' force, and spirit (θυμός) cor-
rupts even the best of men when they hold office not under the rule of law. I thank
Richard Kraut for help with these passages.

Consider first his account of the various types of ἀκρασία in *EN* 7. As we have seen, it is by appealing to the psychological conditions in which agents act continently and incontinently that Aristotle argues in *EN* 1. 13 for the existence of (human) non-rational desires. When in book 7 (=*EE* 6) he presents his developed account of continence and incontinence we find that he now distinguishes between *two* forms of non-rational desire that the weak agent may be defeated by and that the strong agent needs to master.[10] Akrasia in the strict and unqualified sense, he says, is weakness with respect to the 'necessary' sources of pleasure, those of eating, drinking, and sex (7. 4. 1147ᵇ25–8) or, more generally, touch and taste (1148ᵃ8–9). Besides this type of akrasia there are several others, all of which are correctly counted as types of akrasia because of a resemblance they have (1147ᵇ34; 1148ᵇ6, 13) to the unqualified case.[11] They resemble it in that in them, too, an agent experiences a passion (πάθος) that overcomes him so that he acts in a way he had decided not to act, and does so without having changed his mind. Accordingly, these cases are, or should be, referred to with an additional phrase that specifies what it is that the agent is mastered by or with respect to: for example, akrasia with respect to victory, or with respect to honour, or money (wealth), or (financial) gain (1147ᵇ31–5). By contrast, the person (and only he) who is mastered by appetites for the necessary bodily pleasures is called simply incontinent, with no added reference to that wherein his weakness lies. Now among the qualified cases of incontinence, as we shall see at length in a moment, Aristotle singles out for special attention incontinence with respect to θυμός, 'spirited' desire. All the other qualified cases, like the unqualified one itself, are cases of weakness in the presence of ἐπιθυμίαι, *appetitive* desires;[12]

[10] In what follows I simplify by omitting all reference to the parallel phenomenon of continence, which in any event receives only secondary attention in Aristotle's texts.

[11] I omit from my discussion all reference to the more far-fetched set of cases of this general description that Aristotle discusses in *EN* 7. 5, those depending upon unmastered bestial or diseased appetites for bodily pleasure—appetites lying outside the range of anything normally human. I discuss only the first set of cases, explained in 7. 4 and further commented upon in 7. 6.

[12] Since 1879, when John Cook Wilson published his *Aristotelian Studies*, i: *On the Structure of the Seventh Book of the 'Nicomachean Ethics', Chapters I–X*, it has been recognized that 7. 4 contains what appear to be two consecutive expositions of Aristotle's theory of the qualified and unqualified cases of ἀκρασία. (Cook Wilson thought they were by two different authors, neither of them Aristotle, because he

this one is a case of weakness in the presence of non-rational desires of a different kind altogether.

Aristotle argues at length in 7. 6 that incontinence in spirited desires is less morally bad than incontinence in appetitive ones. It appears that his thesis concerns all appetitive incontinence—both the unqualified incontinence having to do with necessary bodily pleasures, and the qualified kinds having to do with pleasures that are not necessary, such as the pleasures of victory, honour, money, and gain.[13] Thus he seems to be claiming that weakness in control-

thought both expositions reflect a view of the scope of temperance at odds with Aristotle's in *EN* 3 and *EE* 3; Gauthier and Jolif are right (p. 618 and *ad* 1148ᵃ8) to reject these suspicions.) The 'second exposition' begins by making it explicit (ἐπεὶ δὲ τῶν ἐπιθυμιῶν καὶ τῶν ἡδονῶν αἱ μέν . . . , 1148ᵃ22) that ἀκρασίαι with respect to 'money, gain, victory, and honour' (ᵃ25–6) rest upon unmastered appetitive desires. It makes mention of ἀκρασία περὶ θυμοῦ only at the end, bringing it in as a further qualified form, comparable in essentials with the ones based on appetites that have already been discussed (1148ᵇ12–14). But the chapter as a whole begins (1147ᵇ22–4) with the statement, evidently intended as a general thesis controlling all the subsequent analysis, that 'it is evident that both continent and incontinent persons are concerned with pleasures and pains'. Read on its own, then, the 'second exposition' would leave one in no doubt how incontinence in spirited desires is being accommodated: it is appetite that is directed at pleasure, whether bodily pleasure or not, as indeed 1148ᵃ22 itself presupposes, so how is *this* incontinence 'concerned with pleasures and pains'? The resolution must lie in Aristotle's standard doctrine that θυμός is or essentially involves a form of distress or mental upset. (He exploits this doctrine in ch. 6, where, in arguing that incontinence is a morally worse condition in appetitive than in spirited desires, he claims that no one executes outrages (ὕβρεις) when in a distressed state of mind (λυπούμενος), and points out that therefore outrage cannot result from θυμός, though it *can* result from the pleasurable indulgence of an ἐπιθυμία.) It is easier to grasp from the 'first exposition' that this is what Aristotle has in mind. There Aristotle brings incontinence in spirited desires into the account from the beginning. He lists it alongside money, gain, and honour as things with respect to which there are different types of qualified incontinence. But these three have been mentioned as among the *sources* of pleasure (τῶν ποιούντων ἡδονήν, 1147ᵇ24)—there is no reference here, as there is in the corresponding passage of the 'second exposition', to appetites—so it is not too great a stretch for the reader to recognize that θυμός is figuring in the account as a source of distress or pain. In effect, the other qualified ἀκρασίαι are concerned with pleasure because that is what the unmastered desire is for, while incontinence in spirited desires is concerned with distress or pain because the unmastered desire in its case is or involves essentially a form of mental upset. (See also 7. 1150ᵃ25–7, where Aristotle explicitly recognizes the difference between incontinence where one is led to satisfy an appetitive desire in order to get the pleasure—this is the sort he has been taking for granted in his discussion—and incontinence where one satisfies a desire just in order to get rid of it.)

[13] If so, then the editor of *MM* has apparently misunderstood the view of Aristotle's he means to be presenting. At 2. 6. 1202ᵇ10–13, he introduces what corresponds to the material of *EN* 7. 6 with the remark that of the qualified kinds of incontinence that with respect to anger (ὀργή) is the most blameworthy, and so takes

ling spirited desires is less morally bad than *any* weakness in controlling appetites, whether necessary ones or not. He gives four arguments to support this conclusion. In the second of these he seems clearly to distinguish between 'appetites for excess and appetites that are not necessary' (τῶν ἐπιθυμίων τῶν τῆς ὑπερβολῆς καὶ τῶν μὴ ἀναγκαίων, 1149ᵇ7–8), i.e. appetites for excessive bodily pleasures of touch and taste, on the one hand, and appetites for such unnecessary pleasures as those from honour, money, etc., on the other;[14] so understood, his argument, reasonable enough in both cases, is that feeling spirited desires, even ones that lead you astray, is more natural to human beings generally than desires either for excessive amounts of bodily pleasure (e.g. pleasures of eating beyond what you need to fill your stomach) or for such optional pleasures as those of lording it over others or being famous or being rich.[15] So, just as we would excuse someone who out of normal and natural extreme hunger or thirst grabs food or drink without asking

the arguments that follow to be ranking this kind of continence morally ahead only of the *un*qualified kind—the one that is concerned with necessary bodily pleasures. (He also, here and in what immediately precedes, 1202ᵃ35, incautiously speaks as if Aristotle had restricted himself to incontinence as to anger, and not spirited desires generally. On this distinction see below.) Modern commentators have followed the *MM* view to the extent of assuming that in this chapter Aristotle ranks spirited incontinence ahead only of the unqualified kind, not also the other (appetitive) varieties. Yet it seems obvious that all the arguments Aristotle actually gives for ranking spirited incontinence morally higher apply equally to appetitive incontinence of all types. I should repeat (see n. 11) that in this and the next paragraph I continue to leave out of account the second broad category of qualified incontinence, that with unmastered bestial or diseased appetites.

[14] The anonymous Greek commentator who filled in the gaps in Eustratius' commentary and Heliodorus both understood the phrase τῶν μὴ ἀναγκαίων in the natural way, as making reference to appetites for the pleasures of honour etc., which are described in 4. 1147ᵇ29 as not necessary (see *Commentaria in Aristotelem Graeca*, vol. xx, p. 431, 13–16 and vol. xix, pt. 2, p. 146, 11–13). (Aspasius says nothing clear at this point.) Modern commentators and translators have usually fudged the issue against this natural reading by treating the καί as epexegetic, which is very hard to justify, given the second τῶν. Ross's translation is typical: 'the appetites for excess, i.e. for unnecessary objects'.

[15] Aristotle adds a coda to the third of his arguments (1149ᵇ13 ff.), as if a further conclusion: if 'this' incontinence is more unjust and morally worse than spirited incontinence, it is also ἁπλῶς ἀκρασία καὶ κακία πως (ᵇ19–20). The anonymous commentator (see *CAG* 20, p. 432, 5–11), who like me takes Aristotle to be arguing for a moral ranking of spirited incontinence above all forms of appetitive incontinence, takes the πως with the whole noun phrase, not just with κακία, and offers a fascinating but strained interpretation according to which Aristotle is not saying here more than that, in comparison with spirited incontinence, appetitive incontinence (in general) counts as unqualified (that is the effect of the πως, he thinks). I prefer to suppose that, following up on the example implied in the quotations he has just

permission first (1149ᵇ5–6), we ought to excuse or show under-
standing for people who misbehave through inability to control an
excess of spirit (for example, of anger)—certainly, that is much
more justifiable than to show understanding for people who misbe-
have from excessive and not normal and universally shared bodily
appetites, or from inappropriate optional appetites like excessive
love of money. People ought not to have such appetites, or cer-
tainly they ought to control them if they do, whereas the former
desires are wholly natural and it is understandable if someone may
occasionally misbehave when experiencing them. Hence inconti-
nence in spirited desires shows a less defective character than any
of the forms of appetitive incontinence does.

But it is Aristotle's first argument for this conclusion (1149ª25–
ᵇ3) that deserves the closest attention. For here he says things about
θυμός and its special relationship to reason that provide a basis for
distinguishing this kind of desire sharply from the appetitive kind
and show its special importance for moral action generally. Spirited
desires, Aristotle points out, unlike appetites (however sophisti-
cated), can or do directly incorporate some of the reasoned evalu-
ative reflection that might lead (or might have led) to a decision to
act as those desires themselves impel one to. Thus if you conceive
that you have been subjected to some insult or slight (whether
subtly, so that you have to reflect carefully on the circumstances to
recognize it, or flagrantly, so that it strikes you at once as being that,
so that no reasoning is called for to recognize it—ὁ μὲν γὰρ λόγος ἢ
ἡ φαντασία ὅτι ὕβρις ἢ ὀλιγωρία ἐδήλωσεν, ª32–3), you may at once
become angry (a special case of spirited desire, one for retaliation),
as if (he says) reasoning (συλλογισάμενος) that it is right to fight
back against this kind of behaviour (ª33–4). Aristotle comments on
this case (ª30–1) that such a person's spirited desire 'hears reason'
(though it does not hear from reason a directive *to* fight back:
indeed, reason explicitly declines to issue any such directive), and
so (ᵇ2–3), if he then acts upon it despite his reason's being against
doing so, we can say that he has been overcome in a way by reason

given, which is a sexual one, Aristotle means by 'this' incontinence at this point not
appetitive incontinence in general but incontinence with respect to necessary bodily
pleasures, such as sexual ones. (Thus I would follow modern translators and com-
mentators in taking πως with κακία alone.) That does not imply, of course, that
the intention of the argument itself is not to support a higher moral ranking for
spirited incontinence over all types of appetitive incontinence. It plainly does do
that.

itself—not by a *mere* non-rational desire, a mere πάθος, as would always be the case with an appetitive desire. He compares such a spirited desire to a servant who hears, as it might be, the beginning of an instruction to bring some drinks but goes off to fetch the usual Coca-Colas without waiting to hear that this time different drinks are wanted (ᵃ26–8).

It is important to notice with some care in exactly what respect Aristotle thinks such an act of incontinence (but no act of appetitive incontinence) involves being overcome by reason itself (in a way). It is plain, anyhow on reflection, that the crucial point for Aristotle is that, as with this servant, the spirited desire simply leaps by anticipation to a conclusion to which reason might be led, but is in fact not led in this case, and does so from a premiss or premisses that it shares with, indeed has in some sense itself obtained from, reason. What are these premisses? Plainly, the mere factual information that an insult or slight has been delivered is not among them. As we have seen, Aristotle is explicit that that might have been obtained not through reasoning but only from an immediate impression (a φαντασία), and he is also explicit that the corresponding factual information in a case of appetitive incontinence might have been obtained by reasoning too (ᵃ35), while denying that *that* incontinence involves being overcome by reason in any way. The crucial premiss is rather the presupposed evaluative proposition that insults and slights are bad and offensive things, normally to be resisted or retaliated against because they represent a disregard for the value of one's own person that no self-respecting person can share, or act as if he did by accepting slights meekly. In becoming aroused, spirited desire as it were puts this evaluative outlook, which it shares with reason, together (ὥσπερ συλλογισάμενος) with the factual information that there has been an insult, so as to reach the conclusion that it is right to fight back against it. The result is akrasia none the less, because though sharing spirit's offence at the insult or slight, reason in that instance regards it as improper to react on the spot. Nothing similar happens in appetitive incontinence: the liking for pleasure, as such, that constitutes an appetite is not derived from or even shared by reason; it is as it were specifically and uniquely its own evaluative outlook that appetite puts together with the factual premiss that something pleasant is to be had when it rushes forward to gratification. Hence, Aristotle argues, incontinence in spirited desires is

morally less bad than appetitive incontinence: it already reflects, though perhaps still very inadequately, at least some of the same broader practical concerns that reason itself endorses.[16]

As I have noted, the example Aristotle uses to make this important point about spirited desires is one of incontinence in anger. It is very important to see that anger is indeed only one quite special instance of the kind of desire Aristotle has in mind in speaking of θυμός in book 7 and elsewhere. On Aristotle's view, and the view that became standard in Greek philosophy, anger (ὀργή) is to be understood in what must seem to us a quite narrow way. It is an agitated, distressful desire to inflict pain in retaliation upon a person who has distressed and upset oneself by delivering an unjustified insult or belittlement to oneself or some close relation or friend. This is how he defines and discusses anger in *Rhetoric* 2. 2, and he plainly presupposes this conception of it throughout his discussion of the virtue of good temper (πραότης) and its opposed vices in *EN* 4. 5; he specifies good temper as the virtue controlling the passion of ὀργή, and there are sufficient references to insults and retaliation to make it clear that he is holding fast to his strict definition of this passion.[17] In effect, as the definition in the *Rhetoric* clearly suggests, anger, so understood, is a special case of spirited desire, the case in which an agitated desire of that spirited type arises as a response to what one takes to have been such insulting or belittling behaviour. Like the generic desire, this specific one is a passion or emotion, but it is not the *same* passion or emotion.[18]

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[16] My interpretation of this argument differs significantly from what I understand to be Burnet's (*The Ethics of Aristotle*, 313-14), adopted by Gauthier and Jolif. He speaks (correctly) of θυμός as sharing some deliberative steps with reason, but neglects to see the crucial point, that that means that it shares with reason an evaluative outlook and not just some complex factual information about what an insult or a slight is or implies.

[17] The much shorter treatment of πραότης in *EE* 3. 3 seems to define it formally in terms directly of θυμός (see the references at 1231ᵇ6 -7, 11, 15 to the λύπη that is or is caused by θυμός as being the locus of this virtue and its opposed vices); but even here Aristotle makes it clear by his references to insults and belittlement (ᵇ12–13) that it is in fact ὀργή that he is talking about, not θυμός in general, and in his clearest statement of what this 'mean state' involves he speaks not of θυμός but of ὀργίζεσθαι (ᵇ21–3).

[18] The *Rhetoric* defines ὀργή as an ὄρεξις μετὰ λύπης with a specific kind of occasion and object (1378ᵃ31 3). I take it that the kind of ὄρεξις intended is θυμός (not ἐπιθυμία, however much thoughts of pleasure in retaliation may be involved (ᵇ1–9), and although this may often be caused by people's posing obstacles to the satisfac-

What then can one say about the genus of desires that Aristotle has in mind under the name θυμός? Aristotle's close association of θυμός with reason and his comparison of its relationship with reason to that of a possibly over-hasty servant to his master should immediately remind one of Plato's description of θυμός in the *Republic* as the natural ally of reason (440ᵇ3, 441ᵃ2–3), an auxiliary for reason in the soul corresponding to the rulers' auxiliaries in the best city. As I have argued elsewhere,[19] the root idea lying behind Plato's introduction of this third kind of natural human desire, over and above reason's desires for knowledge and for the good and appetite's for pleasure, is that there are effectively intermediate desires having always a reference to oneself, that aim at competitive exertion—at making something of oneself, of being active and in command (of oneself, and in relation to one's fellows). In his discussion of akrasia in *EN* 7. 6 Aristotle adds to this Platonic picture the important idea that the underlying value recognized and asserted in this competitive type of desire is itself a version of reason's own ideal that needs only to be properly filled in in order for reason's own scheme of values to become the immediate object of this second kind of desire as well as of desires of reason's own. I will come back to this point later.

In the *Republic* Plato gives this intermediate kind of desire its own special object of pursuit, victory, and/or esteem or honour (τιμή), corresponding to appetite's pursuit of pleasure. As we have already seen, Aristotle rejects this identification: according to him, akratic lovers of honour and victory are incontinently pursuing a pleasure, and so are inappropriately subject not to spirited desire but to certain appetites, appetites for victory and honour. (I will discuss below what he does think the object of θυμός is, parallel to pleasure in the case of appetite.) Again, Plato assigns θυμός a virtue

tion of one's pre-existing appetitive desires (1379ᵃ10–22)). Aristotle standardly speaks of θυμός itself (like ἐπιθυμία) as involving pain or distress, so he does not clearly succeed in distinguishing anger from other forms of the general kind of desire in question with the phrase μετὰ λύπης in the definition. It seems, though, that he may intend by that phrase here to convey a specially high degree of distress, something like the ταραχή or turmoil he mentions frequently in the *Rhetoric* in discussing other emotions treated there (see 1382ᵃ21, 1383ᵇ14, 1386ᵇ18–19; and cf. *EN* 1125ᵇ34, in the discussion of good temper, where Aristotle says that the πρᾶος tends to be ἀτάραχος). That *would* contribute to marking off this specific desire within the genus.

[19] Cooper, 'Plato's Theory of Human Motivation'.

of its own, the virtue of courage or bravery (ἀνδρεία): on Plato's view courage consists in that condition of a person's tendencies to feel spirited desires in which he feels these always in support of the objectives and projects that his correctly informed reason announces as worth while, in despite of the inducements and obstacles posed by pleasure and pain (442ᵇ11–ᶜ3). Aristotle pointedly does not follow Plato in this either.

Initially this is because he thinks, as would be generally agreed, that the passion that courage regulates is not spirited desire in general (nor yet specific instances of it, such as anger) but fear (and confident feelings). In particular, courage concerns fear and confident feelings when one knows one is facing death or what may very well cause it, especially in battle, and these are painful things to undergo, as well as to anticipate (see especially *EN* 3. 9). So courage must have a direct regulative relationship to appetitive desires as well—desires for the pleasure of getting out of danger's way and aversions to the pain of injury—however much it may also regulate spirited desires. More fundamentally, however, to say, as Plato seems to do, that courageous acts, as such, issue from θυμός (a spirit of resistance, the will to fight when threatened) leaves wholly out of account what Aristotle thinks is the crucial thing in all virtuous actions, that they issue from a decision (προαίρεσις) to act that way, and are done for the sake of or because of 'the noble' (τὸ καλόν). To act from θυμός, however well disciplined its desires may be, is still to act from a πάθος (*EN* 1117ª9; *EE* 1229ª21), not from a decision based on reasoning about what is best, and it does not immediately carry with it that love of the noble that virtue always connotes. But although on this ground he classifies facing dangers out of a spirit of resistance as one of five types of pseudo-courage, not true courage (*EN* 3. 8. 1116ᵇ23–1117ª9; *EE* 3. 1. 1229ª20–31, ᵇ26–30; 1230ª22–33), he does recognize for θυμός, πάθος though it is, a special role in true courage that is consonant with what we have learned from *EN* 7. 6 about the close relationship between spirited desires (as distinct from appetitive ones) and reason. Aristotle says that though to be sure brave men act on account of the noble, 'spirited desire helps them in their work' (ὁ δὲ θυμὸς συνεργεῖ αὐτοῖς, 1116ᵇ31); that 'courage' based simply upon a spirit of resistance is 'very close' (παραπλήσιόν τι, 1117ª9) to real courage; and that it needs only decision and direction toward the end (i.e. the noble) to be real courage (προσλαβοῦσα προαίρεσιν καὶ τὸ οὗ ἕνεκα ἀνδρεία [ἔοικεν]

εἶναι, 1117ᵃ4–5). In other words, true courage results when an ante-cedent spirited desire to stand up to danger and resist any impulse to flee has added to it a considered *decision* to act that way just then, *and* itself comes to be directed toward the noble in being directed toward such actions.

There can be no doubt, then, that in his ethical theory Aristotle takes very seriously the Platonic idea that human beings by nature experience two importantly different types of non-rational desire. Moreover, he develops in an extremely interesting way the close relationship between desires of one of these types, spirited desires, and reason that Plato too had emphasized. And, as we have just seen, he makes the close co-operation of the two the basis for assigning spirited desires a specially prominent role at least in the virtue of courage.

THREE TYPES OF VALUE

Although in discussing virtue of character in general, and the other particular virtues besides courage, Aristotle says little explicitly about spirited desires, I want now to present and develop some evidence in the texts that makes me think he means to assign a similar role for spirited desires in all the moral virtues. I will return at the end to address the question why he does not mention this role more frequently and make it more explicit.

I want to draw attention first to an important passage of *EN* 2. 3. It comes in the chapter where Aristotle argues that moral virtue and moral vice are concerned with pleasure and its opposite, λύπη (a term that covers being distressed or upset about something as well as physical pain): a virtuous person, just in so far as he is *morally* virtuous, takes pleasure in and is distressed about the right things in the right ways; a vicious person takes pleasure in and is distressed about the wrong things and in the wrong ways. At 1104ᵇ30–1105ᵃ1 he argues for this conclusion as follows:

There are three objects of choice[20] (τὰ εἰς τὰς αἱρέσεις) and three of avoid-ance: the καλόν (the noble, fine, beautiful), the advantageous, and the

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[20] Myles Burnyeat ('Aristotle on Learning to be Good', in A. Rorty (ed.), *Essays on Aristotle's Ethics* (Berkeley, 1980), 69–92) complains about Ross's translation here of αἵρεσις by 'choice'—correctly, since that is also Ross's English for προαίρεσις,

pleasant, and their opposites, the αἰσχρόν (the base, shameful, ugly), the harmful, and the painful. In relation to all these the good person gets things right, while the bad person gets things wrong, but especially in relation to pleasure. For pleasure is shared with the animals, and it is involved in all the objects of choice, since the καλόν and the advantageous also appear pleasant.

Explicit here is the thought that the good person, the person who possesses the moral virtues, is concerned for and pursues (in a correct way) all three of the objects mentioned. Though Aristotle's main point here is to argue that the good person has a special concern for pleasures (and pains), given that the other two are found by him also to be pleasant, that of course presupposes that he does pursue the two others as well, independently of any pleasure he may get or expect from them.

This list of objects of choice and avoidance was apparently current in dialectical debates in the Academy. At any rate, Aristotle cites it twice in the *Topics*, at I. 13. 105ª27–8 and 3. 3. 118ᵇ27–8, saying that 'choiceworthy' (αἱρετόν) has these three senses, καλόν, pleasant (ἡδύ), and advantageous (συμφέρον). It is clear from the second of these *Topics* passages that 'advantageous' is not to be taken in this context as referring simply to what is useful for obtaining an end—for obtaining, for example, as it might be, some pleasure of something 'noble' or 'beautiful'—but what contributes, specifically, to one's *good*.[21] 'The advantageous', in short, is a stand

in its technical Aristotelian sense a very different thing from what is referred to here (p. 91 n. 25). I agree with Irwin that 'decision' is a better rendering for this technical term, indicating as it does conscious, reasoned selection; 'choice' is then available for use here, and is preferable, for several reasons, to Burnyeat's 'pursuit'.

[21] He speaks of each of the three αἱρετά as chosen as ends (τίνων χάριν, 118ᵇ27 8), and goes on in the next line to speak of other things as chosen as χρήσιμον πρός (useful for the sake of) them. This makes it clear that the συμφέρον is not the category simply of the useful for some end or other. At ᵇ35 νόσος and αἶσχος (disease and ugliness) are given as examples of things to be avoided because 'disadvantageous', although disease is overall more to be avoided because it is a greater obstacle than ugliness is to pleasure and morality. Here the 'disadvantage' is being judged relatively to a conception of what is the normal good state of the person—physical health and decent good looks being among them. See also *Rhet.* 1. 6 (cited in the next note), 1362ª21–34, where Aristotle explains συμφέροντα, i.e. goods, as things choiceworthy for themselves, things that an intelligent mind would assign to one, and things through the presence of which one is well constituted (εὖ διάκειται) and self-sufficient. Dirlmeier (*Aristoteles, Nikomachische Ethik* (Berlin, 1969), 306) helpfully refers to Plato, *Laws* 2. 662e8–663b6, where the Athenian states his view that the three distinct values of pleasure, moral virtue, and our own good coincide in precisely the same overall way of life.

in here for 'the good' (τὸ ἀγαθόν).[22] It seems, then, that the list presents three basic categories of value—(one's) good, pleasure, and τὸ καλόν—as constituting what is ultimately 'choiceworthy' for human beings. This same conception of value as coming in three distinct types lies behind Aristotle's remarks at the beginning of the *Eudemian Ethics* (1214[a]1–8), in which he disagrees with the Delian inscription that identified three different things (justice, health, and obtaining what one loves) as respectively noblest and finest (κάλλιστον), best (ἄριστον), and most pleasant (ἥδιστον): no, he says, εὐδαιμονία occupies the summit at once of all three basic kinds of value.[23]

Now, as we have seen, Aristotle standardly holds that there are three types of human desire, as well—βούλησις, θυμός, and ἐπιθυμία. Furthermore, he clearly correlates the first and third of these three types of desire, 'wish' and appetite, respectively with good and pleasure, the second and third of the objects of choice on his list in *EN* 2. 3. Wish is always for the good or what appears good, appetite is always desire for pleasure. About an object pursued through spirited desire, θυμός, he is nowhere explicit. But I will argue that, in the specific case of the morally virtuous person, he intends to correlate it with the remaining object of choice from our list: spirited desire is the desire through which the morally virtuous person is primarily motivated to pursue τὸ καλόν, the noble or fine or beautiful. The picture that emerges, then, is this. The morally virtuous person is motivated by three types of desires, each with its own special object—respectively what is good (for him), what is noble or fine or beautiful in action (τὸ καλόν), and what is pleasant. These are three distinct values, each with its own nature, and in his respective desires for them the good person gets them altogether right. What he desires as pleasant really is pleas-

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[22] Presumably the reason why Aristotle and his Academic friends spoke in this context of τὸ συμφέρον and not directly of τὸ ἀγαθόν is that they thought of what is *chosen* as something immediately present in the chosen act, and whereas pleasure and 'nobility' could be thought of as typically present in acts chosen for their sakes, one's good, if aimed at, would always be in one way or another something larger than any single act, something to which it would contribute at some distance. See *Rhet.* 1. 6. 1362[a]17–21, where Aristotle says first that in deliberative oratory the aim (σκοπός) of the orator is τὸ συμφέρον, on the ground that the orator deals not with ends but with ways of achieving them, but then goes on to describe this as ἀγαθόν, and to include within it both whatever is good 'in itself' and what is instrumental to that.

[23] Similarly *EN* 1. 8. 1099[a]24–31.

ant, what he desires as noble or fine or beautiful in action really is
noble or fine or beautiful, what he desires as being for his own good
really is good for him. Once we have a better understanding of
what these three distinct kinds of value, and especially that of 'the
noble', are supposed to be, further questions arise concerning pri-
orities and other connections among them and their correlated
types of desire.

GOOD AND PLEASURE AS VALUES

Let me begin by discussing briefly the values of good and pleasure,
and their correlated desires, wish and appetite. A wish, according
to Aristotle's explanation in *EN* 3. 4 and elsewhere, is to be defined
as a desire for something good (for oneself), *as such*—or, anyhow,
something thought of as good by the one experiencing the desire. It
is a desire to have a thing that is (thought to be) good, for the
reason that it is a good thing. Similarly, an appetite is a desire for
something pleasant, as such; it is a desire for the pleasure of some-
thing *because* (in the desirer's experience) it *is* pleasant in some
way.[24] In making the capacities for desires of these types parts of
our human nature Aristotle implies that it is a natural fact about
human beings that as adults they (normally) want what they think
is good for them, just for the reason that it is (they think) good; and
that all human beings, of whatever age, (normally) want what they
find pleasant, just because it is pleasant.[25] (This is a modest claim,
implying nothing about how strong or how effective in any indi-
vidual person desires of either type might be.)

By making the desire for our good, as such, part of our *rational*
nature (in the narrow sense) Aristotle implies that this desire is a
very special one, issuing directly from our power to reason and
reflect and to hold opinions about what to do that are backed up by
reasons. According to Aristotle, when we hold the view that some-
thing is good for us, unless some special defect or failure occurs in

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[24] *Top.* 6. 3. 140ᵇ27 ff.; *de An.* 2. 3. 414ᵇ5–6; *Rhet.* 1. 10. 1369ᵇ15–16; *EN* 3. 4.
1111ᵇ17; and *EE* 2. 7. 1223ᵃ34, 7. 2. 1235ᵇ22.

[25] I draw here on Aristotle's careful distinction at *EE* 2. 8. 1224ᵇ29–35 between
appetite as belonging naturally to human beings in the sense that it is present
immediately from birth, and reason with its desires as belonging naturally because
they will be present if growth continues and is not disrupted.

our minds, we thereupon want it; and this is so not because we have learned to take pleasure in what *is* good for us or in doing whatever we take to be good for us, or because in general our pre- or non-rational likes and dislikes have developed, or been trained, in such a way that some desire of that type is 'triggered' by the holding of that opinion. Besides any such contingent desire for our good that we may have, on Aristotle's view we also want our good directly, simply because that is how rational beings are. This we cannot help. By contrast, the desire for pleasure is in no way consequent upon our opinions about what is good for us; it is a further natural fact about us that we also desire what gives us pleasure, and that desire has nothing immediately to do with what we may or may not think about our own good. This too we cannot help.

It will help us to understand better and to appreciate Aristotle's attribution to human beings of a specifically rational desire for their good if we bear in mind Aristotle's own views, argued for in a preliminary way in the first book of the *Nicomachean Ethics*, about what a human being's good in fact consists in. Aristotle's theory equates our good with the full exercise of those natural capacities that belong to our nature as human beings and belong to no other animal. In effect, our good is the fullest development and active use, in a normal mature life, of what is most essential to our natures as human beings, namely our rational capacities them-selves, in both the straightforward or narrow and the extended senses I have delineated above. The argument that this is our natural good is parallel to similar arguments about the natural good of other living things: in general, the thought is, the good of any living thing consists in its possessing and exercising unimpededly, in a normal mature life for a member of its species, those natural capacities that are distinctive of that particular life-form among all the others.

Now we do not need to go into controversial and difficult details of this argument in order to convince ourselves that the general thought lying behind it rests upon a strong intuitive basis. It is an intuitively compelling idea that all living things as such have a good, and that the good of each member of a species consists in its living an active life functioning fully according to its nature. This idea clearly lies behind all our discourse about what is harmful or ben-eficial for plants and animals. Aristotle's theory of the human good simply applies this compelling idea (not necessarily in an equally

compelling way, to be sure) to the case of the human species in particular. It is a noteworthy feature of this general idea that it identifies the good of any living thing, for example a tree, not with the satisfaction of any desires the thing may have (after all, most of us don't believe trees have desires or any other conscious experience at all), but with some natural functioning of its life-capacities. To the extent, therefore, that the general idea is a compelling one, we can find in it a good rationale for thinking similarly of the human good; our good, too, is not a matter of having our desires satisfied, but of functioning in some way that expresses our developed natural life-capacities. On Aristotle's own theory, the first and essential part of our good consists in how the rational aspects of our souls are structured and disposed, and what in consequence of that we desire and feel about ourselves, about other persons, and about all manner of things, and what we undertake to do as a result of desiring and feeling that way.[26] Of course, it is certainly the case that having a desire satisfied is necessarily *an* objective of anyone who has that desire. So if we are in the condition that Aristotle equates with our good we will necessarily have a lot of objectives that correspond to the desires we have because of being in it. But our good does not consist in achieving them *because* they are desired, because without them our desires would be frustrated. It consists simply in being in the condition and functioning accordingly; in general, whether any or all of these desires get satisfied is a further, separate question. That this conception of our good is at odds with the run of contemporary philosophical thought on this subject, or even at odds with mainstream philosophical thought since the Renaissance, is very much worth noting and reflecting carefully on, but there is no doubt that it involves nothing *unintelligible*. The compelling intuitive idea guarantees that.

The rational desire for our own good that Aristotle attributes to human beings must be understood against this theoretical background. If his arguments for his theory of the human good are sound, then those who understand them ought to find themselves

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[26] I leave out of account here the 'external goods' as additional components of the good according to Aristotle. For two discussions of these further goods, see my article 'Aristotle on the Goods of Fortune', *Philosophical Review*, 94 (1985), 173–96, and T. H. Irwin, 'Permanent Happiness: Aristotle and Solon', *Oxford Studies in Ancient Philosophy*, 3 (1985), 89–124.

being persuaded. Given that we all have a natural desire for our own good, those who are persuaded of his theory of the good ought to come to desire as their good what Aristotle has argued is really good for us. But according to Aristotle's theory of the different human desires, even those who hold different views about the human good will desire what they think their good consists in with a desire whose natural function, at any rate, is to direct them toward the full development of their natural capacities as (rational) human beings and towards living a life structured by the active exercise of them. If our natural good *is* this kind of active use of our powers, then we need a natural desire that will, if developed naturally, lead us to pursue it. On Aristotle's theory, that is the function of βούλησις.

If, then, someone is desiring to have some pleasure (say, a bodily one), and desiring it because and in so far as (he thinks) it is a good thing to have, this desire derives from his reason. His reason is in the final analysis responsible for that judgement of value, and so for this desire, which is based upon it. This desire may (and in all but fairly bizarre cases, surely would) be accompanied by another desire, having a different psychic source, for the same pleasure—an appetitive one, aimed at the pleasure not as good (in whatever way, in his rational reflections, the agent regards it as being good for him), but simply as pleasant. This second desire is a desire for it because the agent *likes* that sort of thing—quite a different ground of motivation from his thinking it good for him. Aristotle regularly connects pleasure with the appearances of things, for example at *EE* 7. 2. 1235ᵇ27 ff., where he says that the pleasant is a sort of φαινόμενον ἀγαθόν (apparent good)—and adds that it is what *appears* good to you in such a way that you may none the less not *think* it is good at all (κἂν μὴ δοκῇ). In this case, you would have an appetitive desire but no rational desire for whatever the thing was that struck you in this way. As this passage from the *Eudemian Ethics* shows, the appearance of goodness that finding something pleasant involves is a 'non-epistemic' sort of appearance. What you find pleasant appears good in a way or sense that is parallel to the sun's looking approximately the size of a large button, even if you know perfectly well that it is far larger (see *de Anima* 3. 3. 428ᵇ2–4): the knowledge of its true size does not affect the appearance in this sense. Similarly, what appears good to you because you find it pleasant is independent of what you *think* is good. The object of

ἐπιθυμία, i.e. the pleasant, is therefore the 'apparent good' in a different sense from the one in which Aristotle (*EN* 3. 4) says the object of wish is the good or the apparent good; for he explains the 'apparent good' there as what a person *thinks* is good (cf. τὸ δοκοῦν, 1113ᵃ21). The object of wish is the good or the apparent good in an 'epistemic' sense of 'appears'—it is what one takes or holds actually to be good.

We can understand how Aristotle means that what we find pleasant appears good to us if we recall his account of pleasure in *EN* 10. In chapter 4 of that book Aristotle explains the pleasure that arises from good sensory and other activities as a secondary end that supervenes upon whatever the primary end of the activity may be (seeing something, learning something, contemplating the truth, or whatever). In effect, in these cases (the ones Aristotle thinks are good pleasures), pleasure is a way in which the goodness of the activity is experienced through its effects on our subjectivity in general, or our sensibility in particular. But it is in the good instances of a genus that the true nature of things of that genus is revealed, so that even when a pleasure is a bad or a base one, we can say that the effect that the activity in question is having on the person's way of experiencing it is such that it is to him as if it was a good one. It appears good to him, in the sense that its effects on his sensibility or subjectivity in general are similar to the effects on a good person of the good activities that *he* finds pleasant. In either case, the appearance has nothing to do with what the agent *thinks* is good. Even the good person in having an appetitive desire for a pleasure is wanting this effect on her subjectivity—not the good of which the effect is a reflection and on which it supervenes. In no case is an ἐπιθυμία a desire for any good thing, whatever it may be, that the pleasure accompanies; it is for the pleasure, i.e. for a certain effect on one's subjective experience of whatever the thing is. Pleasure, as a value, is therefore a distinct kind of value from good, even where they may be mutually implicated.

THE SPECIFICALLY MORAL VALUE: τὸ καλόν

Aristotle says repeatedly in the *Nicomachean Ethics* that τὸ καλόν is *the* end for which the morally virtuous person as such always acts: at 1115ᵇ13 (where the reference is particularly to courage), 1119ᵇ16

(temperance), 1120ᵃ24 (generosity), 1122ᵇ6–7 (magnificence). (And see *EE* 1229ᵃ4, 1230ᵃ26–33.) Although in some of these passages he says simply that acting τοῦ καλοῦ ἕνεκα is characteristic of virtue (ἀρετή), the contexts make it clear that he is talking in particular about *moral* virtue (in general) and the various specific moral virtues. When, by contrast, he explains what the virtue of practical wisdom is, he speaks only of knowledge and pursuit of things that are *good* for oneself: 1140ᵃ26–7, ᵇ4–6, 20–1; 1141ᵇ7–8, 12–14 (and see *Rhet.* 1. 9. 1366ᵇ20–2).²⁷ Practical wisdom (or the practically wise person, *as such*), then, does not act 'for the sake of the noble', but for the good. We have seen already why practical wisdom should be concerned with knowledge and pursuit of things good. That follows from the fact that it is the virtue of the practical intellect, which is the immediate source of βουλήσεις, desires for the good, as such, and among desires, only of βουλήσεις. But since the moral virtues are certain conditions on the capacity for non-rational desires, if *moral* virtues (by contrast) involve in an essential way the pursuit of τὸ καλόν, it is plausible to think that in some way or other the non-rational desires are responsible for that. Before pursuing this suggestion, however, we need to ask ourselves what kind of value 'the noble' is in the first place. It is surprising, considering the evident importance of this value for his understanding of what moral virtue is, that Aristotle does not say much in explanation of it in any of his ethical writings. Still, there are passages of other treatises (*Topics*, *Rhetoric*, and *Metaphysics*) to which we can turn, as well as one extended discussion in the last chapter of the *Eudemian Ethics*, in order to draw together the materials we need to construct an Aristotelian account of what sort of value the noble or fine or beautiful in action is.

²⁷ Having defined or explained, in terms of the pursuit of what is good, what practical wisdom and the other virtues of practical thought are, Aristotle does, of course, go on in raising questions about the value of this virtue (6. 12–13) to describe φρόνησις as concerned with 'things just and fine-or-noble and good for a human being' (1143ᵇ22–3) or simply with 'just and fine-or-noble things' (1144ᵃ12). It is the intellectual virtue responsible for the just and in general the morally virtuous person's actions, and as such it does concern itself with these matters. Furthermore, if acting and feeling morally–virtuously is good for human beings, then part of what practical wisdom will know is that fact, so that in knowing about what is good it will also concern itself with what is just and what is fine-or-noble, just as it also concerns itself with what is pleasant and directs us towards that. None the less, it is moral virtue, and not practical wisdom, that is directed at τὸ καλόν *as such* (and not at it because it is good).

In several places Aristotle connects the noble or fine or beautiful in action with what is praised or praiseworthy. In the *Rhetoric* (1. 9. 1366ᵃ33–4) he proposes two alternative definitions of the noble: it is either whatever, being chosen because of itself, is praised or praiseworthy (ἐπαινετόν), or else whatever is good, and pleasant because it is good (ὃ ἂν δι' αὑτὸ αἱρετὸν ὄν ἐπαινετὸν ᾖ, ἢ ὃ ἂν ἀγαθὸν ὂν ἡδὺ ᾖ, ὅτι ἀγαθόν). The first of these definitions, the one in terms of praise or praiseworthiness, appears to recur in the last chapter of the *Eudemian Ethics*, though the manuscript text seems pretty certain to be slightly corrupt: those good things that are ends, Aristotle says there, are noble which, existing (or, with an emendation, being chosen) for themselves, are [all of them] praised or praiseworthy (ὅσα δι' αὑτὰ ὄντα πάντα²⁸ ἐπαινετὰ ἐστίν, 8. 3. 1248ᵇ19–20). So, the suggestion is, praise or praiseworthiness (where the thing that carries the praise is chosen because of itself) is somehow an essential characteristic of whatever is noble. So the desire to do something praiseworthy because it is praiseworthy must be part of what is involved in the love of the noble. But what does Aristotle think deserves praise, and why?

It has recently been suggested by T. H. Irwin that what is praiseworthy about virtuous actions, and so what the desire to do a noble or fine action is directed at in it, is its being for the common good, and not merely for the good of the agent himself and his family and friends.²⁹ I agree with Irwin that on Aristotle's account of the moral virtues the virtues and virtuous action are concerned for the common good; and in itself the suggestion is plausible that the community, who are of course the ones who bestow praise, make a point of praising qualities of mind and character, and actions, that are directed at the common good. However, Aristotle nowhere explicitly

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²⁸ So the MSS, but should we read αἱρετὰ for πάντα, as Spengel suggested? That would make the definition of τὸ καλόν here coincide with the first definition given in *Rhet.* 1366ᵃ35, cited just above in my text; the πάντα is suspect anyhow, being redundant after ὅσα and not usual in such phrases in Aristotle. Perhaps we have a double error in the MSS here: πάντα added by dittography after ὄντα and αἱρετὰ dropped by haplography through its resemblance to ἐπαινετὰ. Woods keeps the MS. reading except that, following Verdenius, he brackets ὄντα. But that produces a non-Aristotelian, maybe nonsensical, idea: that the noble things are those good things that are ends that are *praised* because of themselves (see *EN* 1. 12. 1101ᵇ12–18). Dirlmeier's objections to any emendation are completely misguided (*Aristoteles, Eudemische Ethik* (Berlin, 1969), 494–5).

²⁹ 'Aristotle's Conception of Morality', *Proceedings of the Boston Area Colloquium in Ancient Philosophy*, 1 (1986), 115–43.

connects working for the common good with praiseworthiness, nor is there persuasive textual evidence that he thought an action's being directed at the common good was the essential ground of its being a noble or fine one.[30]

We can get a clue to what Aristotle did think fine and praiseworthy about virtuous actions if we attend to two further things Aristotle says elsewhere about the noble—things that seem to reflect especially the fact that the word καλόν also means beautiful or handsome in an aesthetic sense. I have in mind first two passages where Aristotle links nobility with what is fitting (πρέπον). In *Topics* 5. 5. 135ᵃ13 he says the καλόν and the fitting are the same thing, and this identification is presupposed in *EE* 8. 3. 1249ᵃ9, where he develops an argument having as one premiss the proposition that noble things are fitting things. What, however, is fitting about them? Here the concluding paragraph of *Metaphysics* M3 (1078ᵃ31–ᵇ6) gives us the help we need.[31] In this passage Aristotle disputes the claim that the mathematical sciences have nothing to tell us about goodness and nobility (fineness, beauty). He begins by distinguishing goodness from nobility, saying that goodness is found only in the sphere of action whereas nobility is found both there and among unchanging entities (and so, quite possibly, among the objects of mathematics, which are unchanging things). This explicit reference to nobility of action is a helpful reassurance

[30] Irwin's argument is most impressive where it concerns *Rhet.* 1. 9. Aristotle in discussing the virtues in that chapter repeatedly emphasizes that virtuous action and character are principal bases for justified praise and connects their praiseworthiness with the fact that they involve acting disinterestedly for other people's and one's country's sake. But Aristotle's aim in discussing the virtues in the *Rhetoric* is to provide the intending public speaker with what he needs to know in order both to find materials to draw on in constructing an encomium and to devise the means when speaking in the assembly or lawcourts to make his hearers have a high regard for himself as a good, moral person, concerned for the public interest. It is not surprising that he should emphasize this aspect of the virtues in this context; that he does so shows no more than that in the popular Athenian mind there was a strong connection between praiseworthiness and action for the good of others. Nothing follows about what a correct philosophical theory of the nature of τὸ καλόν and the bases of the praise it merits will say about these matters. The evidence Irwin cites from Aristotle's strictly philosophical works to show that he connected the praise of the fine-or-noble with support of the common good is extremely tenuous.

[31] D. J. Allan ('The Fine and the Good in the *Eudemian Ethics*', in Paul Moraux and Dieter Harlfinger (eds.), *Untersuchungen zur 'Eudemischen Ethik'* (Berlin, 1971) noticed the relevance of this passage to the understanding of Aristotle's conception of moral virtue as directed at τὸ καλόν, but could not find much illumination in it (pp. 67–8, 70).

that in what follows he is not speaking about some special type of
nobility found in the mathematical realm but about nobility in a
sense that applies to noble actions as well. The highest types of
nobility or fineness or beauty, he says, are order, symmetry and
determinateness (τάξις καὶ συμμετρία καὶ τὸ ὡρισμένον)[32]—and the
mathematical sciences give proofs about these matters in a spe-
cially high degree. (He means, I take it, that they prove of various
mathematical objects that they have properties that are particularly
telling instances of order, symmetry, and determinateness.) More-
over, he says, since order, symmetry, and determinateness provide
explanations for why some mathematical objects are as they are, it
is clear that in a way these sciences also instruct us about that kind
of explanation—explanation invoking nobility or fineness or
beauty as a final cause.

The clear implication of this discussion in the *Metaphysics* is that
what τὸ καλόν in action involves, in addition to the praiseworthi-
ness we are told about elsewhere, is order, symmetry, and
determinateness. I will say something in a moment about how
virtuous actions might be thought to exhibit these properties. But
first we should notice something about how these two accounts of
τὸ καλόν (the one in terms of praiseworthiness, the other in terms of
order, symmetry, and determinateness) apparently fit together. In
the *Eudemian Ethics* we are told that things that have this property
of nobility (e.g. virtuous actions) are chosen for their own sakes
and praised or worthy of praise for that reason. In the *Metaphysics*
we are told that what has this property exhibits order, symmetry,
and determinateness. The connection then is this: καλά things *as
such* exhibit order, symmetry, and determinateness, and when they
are chosen for their own sakes, i.e. because they do exhibit these
properties, then they are praised or worthy of praise for that
reason—for the reason that they are so chosen.' The idea then is
that when someone does actions having order, symmetry, and
determinateness (in a high degree), precisely out of a desire for, or
love of, such actions because they do have them, he and his actions
deserve praise.

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[32] It seems that Aristotle is developing here some ideas of Plato in the *Philebus*,
64d–e ff. Plato too connects κάλλος with συμμετρία (and τὸ μέτριον), and finds these
exemplified in the way elements in a complex composition (a 'mixed life') fit
together with one another. For Aristotle, too, κάλλος depends upon the way in which
disparate elements in a life-composition fit together, as we shall see.

The link here between praise and doing an action or indeed making something with these features of order, symmetry, and determinateness makes good sense. Such action and production require discrimination and discipline, and are therefore worth praising if what they lead to is something of value. The praise of virtuous action that Aristotle has in mind in connection with its nobility or fineness or beauty is therefore akin to the praise one gives to any accomplished artist or skilled craftsman for the discipline and discrimination shown in his work. So it does not seem that Aristotle based the praise owing to virtuous actions at all on the fact that they are directed at the common good. It may be that many, or even all, virtuous actions are aimed, among other things, at the common good. But that is not the feature of virtuous actions that Aristotle thought made them merit praise and so constituted their being καλόν.

But in what does the order, symmetry, and determinateness of virtuous actions consist? Let us take order and symmetry together first. The pursuit of order and symmetry, in whatever context, implies the putting together in a fitting way of disparate parts or elements in some sort of composition. What might these be in the case of actions, and what in Aristotle's theory of virtuous action might one draw on to develop an Aristotelian conception of the order and symmetry of these actions? Two things come to mind here. First of all there is the question how any given action fits together with other actions, past and future. Is this action consistent with past actions? Does it cohere well with other actions planned or expected in the future? In general, does it fit together with the agent's other actions, past and future, in such a way as to make up a balanced, harmonious, whole series of actions constituting a well-articulated and structured whole active life? And secondly there is the question how *in* any given action the agent deals with the various concerns that are or might be affected by her action: are they all given proper attention, are they balanced correctly in relation to one another, so that in the selected action the full complexity of the situation is adequately responded to?

As for determinateness, the following suggests itself. Determinateness in general implies sharpness of definition, and this suggests something about the fit in all the respects where order and symmetry are involved in the 'composition' of one's actions—in the

balance and harmony *within* the action, as done, of the multiple
concerns the agent has in mind, and in the fit between *this* action
and the series of past and future actions of which it is intended to be
a part. Determinateness of fit here would mean that the fit is a close
one, that there are, so to speak, sharp edges at all the borders where
the pieces of the 'composition' join. In other words, the
determinateness in moral action qua καλόν consists in the fact that
precisely *this* action, done in precisely *this* way, is what is required
just now—given what has preceded and is intended to follow. This
may seem to go against Aristotle's celebrated insistence on the lack
of precision (ἀκρίβεια) necessary in the study of ethical matters, but
I think it does not. One should bear in mind that what he actually
says is only that a moral philosophy adequate to the facts cannot
provide statements and explanations about what is to be done that
attain very great precision.[33] He does not say that the choices of the
morally good person are not firm and definite in all essential re-
spects. If 'the decision lies in perception' (*EN* 2. 9. 1109ᵇ23), that
does not mean that perception itself about what to do necessarily
leaves anything of substance undetermined, that it always or even
ever leaves open a lot of options that would be equally good solu-
tions to any practical problem—so that looseness of fit, rather than
the determinateness I have sketched, would apply instead.[34]

Such an 'aesthetic' interpretation of what it is for actions to be
καλά, and this way of spelling it out, draws support from Aristotle's
definition of moral virtue in terms of a tendency to feel and act in
an intermediate way. An intermediate is always measured against
some extremes; it is a condition of harmony and balance. When he
first introduces this notion (*EN* 2. 6. 1105ᵇ26 ff.) and applies it to the
virtues of character, Aristotle speaks in fairly gross quantitative
terms: virtue selects certain intermediate amounts of feelings and

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[33] See *EN* 1. 3. 1094ᵇ11–22.

[34] On my account Aristotle's conception of the καλόν bears interesting compari-
son with Stoic accounts of this same value-property. In the account of Stoic ethics in
Stobaeus (2. 63. 1–5 = *SVF* iii. 278) we read that κάλλος of the soul consists in a
certain kind of συμμετρία, and D.L. (7. 99 100) makes every good also καλόν because
it συμμέτρως ἔχει πρὸς τὴν ἑαυτοῦ χρείαν and connects being καλόν with being τελείως
σύμμετρον; and he goes on to say that this is what renders those who possess it worthy
of praise (ἐπαινετούς). Cato in Cicero's *de Finibus* 3. 21 describes the last stage in
moral development as that in which a person *vidit rerum agendarum ordinem et ut
ita dicam concordiam* and concludes that that is the *summum . . . per se laudandum
et expetendum bonum.* For the Stoics, too, τὸ καλόν is a matter of συμμετρία and τάξις,
and therefore a ground of praise.

some allegedly corresponding but not satisfactorily spelled out amounts of actions. But soon (already towards the end of 2. 6, at 1106ᵇ21–3; and see 2. 9. 1109ᵃ24–30) he links the intermediacy of virtuous feeling and action with feeling and acting at the right time, about the right things, towards the right people, for the right purpose, and in the right way, and so on. These formulas are naturally seen as reflecting a concern to respond in feeling and action in a way that answers adequately to the full complexity of the particular situation, by giving appropriate recognition in the way one feels and how and what one does to a whole range of impinging claims on one's attention, claims that have to be recognized and appropriately accommodated somehow in one's feelings as one acts, and in one's action itself. This fits particularly well, perhaps, with the second of the two considerations about the order and symmetry of actions that I have mentioned, about the need to respond at one and the same time, in both feeling and action, to a large range of impinging concerns. But it connects also with the other consideration about order and symmetry and with determinateness as I have interpreted that—with the need to fit the current action in a determinate way into a continuing pattern of past and future actions— since among the currently impinging concerns will be ones relating to past and future: all these concerns must be joined and *unified* in the feelings out of which one acts and in the action itself.

θυμός AND τὸ καλόν

Let us suppose, then, that this sort of order, symmetry, and determinateness of action is the value that Aristotle means to point to and recognize under the name of nobility or fineness or beauty in action, and that he makes *the* end of moral virtue and morally virtuous action as such.[35] I suggested above (pp. 97 and 103) that, at any rate in the case of the morally virtuous person, Aristotle holds that it is through his spirited desires (his θυμός) that he pursues τὸ

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[35] Perhaps I should say explicitly that I do not intend here or in what precedes to be offering on Aristotle's behalf a definition of moral value that in any sense reduces it to some sort of non-moral value (for example, some sort of aesthetic value). The σπουδαῖος himself is the final standard or measure of this sort of value, as of the others, and no one with a well-developed aesthetic sense, however extraordinary, would know from that which actions and which types of character were the καλόν ones. I take Aristotle's characterization of this value in aesthetic terms as intended

καλόν as such; that is to say, Aristotle makes order, symmetry, and determinateness of action the immediate and constant object of the morally virtuous person's spirited kind of desire, corresponding to (his) good and pleasure as the objects of his other two types of desire. I turn now to a defence of this suggestion.

I argued above that spirited desires in general are competitive in character; they aim at self-assertion as an agent, as a person to be taken serious practical account of, in comparison and in competition with other agents. It is for this reason that Plato in the *Republic* made victory or honour the immediate object of this kind of desire, parallel to pleasure (or money, the means of obtaining it) as object of appetitive desires, as such. But we have seen evidence (pp. 93–4) that Aristotle refused to follow him in this. So far as I can see, Aristotle nowhere offers a replacement for Plato's rejected specification(s) as to the object of spirited desire in general. My suggestion is not that Aristotle proposes the noble or fine or beautiful as the immediate object of spirited desires in general— for such desires of non-human animals, or children, or even all adult human beings. It is only for the morally virtuous person, and only after a certain stage is reached in the special course of moral development and self-discipline that leads a person to the possession of virtues of character, that I want to claim that this is Aristotle's view.

In an excellent article Myles Burnyeat has given a persuasive account of the process by which, according to Aristotle, a young person 'learns to be good'. Burnyeat speaks of the young person coming by habituation to take pleasure in 'noble and just actions' and thereby becoming suited to hear lectures on ethics and ready for reason to 'take hold . . . so as to form and shape for the best the patterns of motivation and response which represent the child in us'.[36] As we have seen, these childish 'patterns of motivation and response'—the non-rational ones—are of two types: appetitive (aimed at pleasure) and spirited. Both sorts of motivation and response must be put into a preliminary good condition, so that

to offer a perspicuous description of one aspect of the state of mind and feeling of the morally virtuous person. We learn something interesting and illuminating about moral virtue by learning this. But there is no suggestion that anyone could become virtuous by an independent appreciation of some values with which he was antecedently fully familiar.

[36] Burnyeat, 'Aristotle on Learning to be Good', 86.

reason can 'take hold'. Burnyeat describes how this is to happen mostly for the case of the appetites: once a young person comes to take pleasure in acts of the virtues, this pleasure, and the young person's desire for it, can then be used as a counterweight in his (or others') reason-based efforts to reshape his *other* desires for pleasure—by eliminating some, reducing others, initiating him to yet others, and so on—as well, of course, as to refine and deepen this pleasure in virtuous action itself.

A parallel process for spirited desires must, then, be involved as well. How are we to conceive that? Here one should notice that in Burnyeat's account (and the principal texts of the *Nicomachean Ethics* on which it is based)[37] Aristotle says that a young person must become habituated to take pleasure not just in the doing of just actions (and others required by the virtues) but in these *as* 'noble'—to take pleasure in these actions for the order, symmetry, and determinateness that is found in them, therefore. How are they to come to do that? Evidently they must first become aware of and experience the nobility and fineness of the actions required by the virtues, before discovering a pleasure *in* that nobility (and their experience of it). Here is where I believe θυμός-desires come in. These desires, as we have seen, aim at competitive exertion, at being active and in command, at making oneself significant. Young people must initially be brought to find satisfaction for their θυμός-desires in the order, symmetry, and determinateness of morally virtuous actions: the self-discipline required to compose such actions (individually and in appropriately connected series) makes them a salient object for that kind of desire, and presumably an especially satisfying one. Just as with appetitive desires for pleasure, so here: once, through habituation, young people do come to experience the satisfaction of their θυμός-desires through the nobility and fineness of actions of the virtues, this satisfaction and their desires for it can be used as a counterweight in their own (and others') reason-based efforts to reshape their *other* spirited desires—by eliminating some, reducing others, initiating them to yet others, and so on—as well, of course, as to refine and deepen the satisfaction for their spirited desires to be found in the nobility and fineness of virtuous action itself. Once they discover and begin fully to experience the satisfaction of their θυμός-desires in the nobility

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[37] See *EN* I. 1095ᵃ2–13, ᵇ2–13; 10. 1179ᵇ4–31.

of virtuous action, and so to be able to take *pleasure* in it, they draw into a single focus both of their two kinds of non-rational desire. At the same time, and as a result, they advance to the threshold of achieving effective control of their lives by reason.[38]

We saw earlier that for Aristotle, as for Plato, spirited desires are the 'ally' of reason in this process. The spirited desire for the order, symmetry, and determinateness of actions is a desire for something that these desires (initially aimed only at self-assertion, at active and competitive agency) only gradually *discover* to be satisfying. But in doing so such desires advance the reign of reason, because reason itself recognizes this order, symmetry, and determinateness as a very good thing. In order for virtue itself to be fully achieved, as we saw in his discussion of the connection between θυμός and courage, not only must this orientation of θυμός to τὸ καλόν be present, but the actions issuing from it must also be decided upon as correct (προαιρετόν). This means that when virtuous persons decide to do a virtuous action, desires both of reason and θυμός will motivate them (often, of course, appetitive desires would join in as well). The θυμός-desire will be a desire for whatever is καλόν in the action, and will be a desire to do the action for the sake of that. The reasoned desire to do it (namely, the decision itself)[39] will be a desire to do it because it is good and constitutes εὐδαιμονία in those circumstances. Part of the thought contained in the reasoned desire will be the recognition that a virtuous disposition of the non-rational desires, and action on that disposition, being καλόν, is a good thing, and a fundamental good at that. So the reasoned desire

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[38] I am unsure to what extent this account of θυμός and its connection to the specifically moral value of τὸ καλόν may go beyond Burnyeat's delineation of the stages by which a good person develops over time. As will be apparent by this point, I am in agreement with Burnyeat in seeing that *EN* 1104^b30–5 refers to three 'irreducibly distinct categories of value' that connect each with 'a distinct set of desires and feelings' ('Aristotle on Learning to be Good', 86). If my account differs from his, it is, first of all, in the special emphasis I place on the spirited desires as becoming focused, through habituation, on the noble or fine in action, and on the subsequent pleasure that is taken in their satisfaction through that kind of action. Secondly, I emphasize, as Burnyeat does not, the permanence of the psychological independence from reason of both types of non-rational desires. The harmony of the desires of the fully moral person (her or his rational, spirited, and appetitive desires) is a harmony of sources of motivation that remain independent of one another—not the subsumption into reason of what previously counted as independent sources.

[39] See Cooper, 'Some Remarks on Aristotle's Moral Psychology', 30 and n. 4, and the passages cited there.

or προαίρεσις to do the action will also desire it for the sake of the καλόν in it.[40] Indeed, Aristotle almost says as much explicitly. He makes it a requirement of morally virtuous action that one decide on (προαιρούμενος) such actions for themselves (δι' αὐτά) (2. 4. 1104ᵇ31–2), and it seems plausible to interpret this as meaning that one must decide on them *as* virtuous, i.e. do them τοῦ καλοῦ ἕνεκα. This does not mean, however, that the pursuit of the specifically moral value of τὸ καλόν by reason renders its simultaneous pursuit by θυμός redundant, or even takes its place—any more than a desire of reason to have some bodily pleasure substitutes in the case of a virtuous person for an appetitive desire for it, or renders such a desire redundant. Indeed, the practically wise person has learned to desire the καλόν with his reason because earlier he desired it with his θυμός-desires. And he relies upon the continued harmonious and supportive functioning of his non-rational desires, θυμός as well as ἐπιθυμία, in order to hold firmly to the correct overall view of the good, holding to which constitutes his being practically wise in the first place.[41]

The specifically moral value, then—the value with which morally virtuous persons as such are specially concerned—is constituted by the order, fittingness and harmony, and determinateness of whatever possesses it. If I am right, this kind of value is for Aristotle the eventual object of one of the two types of non-rational desire that he thinks human beings are all endowed with, θυμός. It is through θυμός that people are first motivated to experience this kind of value, and so first enabled to know, though haltingly, what is valuable for us in it. The morally virtuous person, in whom reason has taken control, has a reasoned understanding of this kind of value and so is motivated to pursue it simply on the basis of that understanding. But she continues to be motivated to pursue this value also by her θυμός-desires, whose satisfaction, indeed, is necessary for her to *experience* it fully. Similarly, her desires for pleasure motivate her to pursue, and their satisfaction is necessary for her to experience, those pleasures that reason determines are good for

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[40] This parallels the situation when a person acts out of an appetite for some pleasure, and at the same time out of a desire for his good, the pleasure itself being counted as something good. See above, pp. 101–2.

[41] See *EN* 6. 5. 1140ᵇ11–21; 12. 1144ᵃ34–6. These passages provide the background for understanding Aristotle's thesis in 12. 1144ᵃ20–2 and 13. 1145ᵃ2–6, that moral virtue makes the decision straight, i.e. for the true end, while practical wisdom makes the action done be rightly directed to that.

her to have. Reason gives the needed direction to the θυμός-desires, as it does to the ἐπιθυμίαι, but experiencing θυμός-desires and acting constantly on them is what, according to Aristotle's theory, makes the life led according to reason a *morally* virtuous one.

ANTI-CLIMACTIC CONCLUSION

If spirited desire plays such a crucial role for Aristotle, both in moral development and in the virtuous action of the fully virtuous and practically wise person, why does he not make this more explicit? Why does he leave it to his reader to piece the story together in this roundabout and painstaking way? In fact, shouldn't we be wary about accepting any such story as I have told, just because it does have to be so laboriously pieced together? I do not think there can be an answer to these questions that is satisfactory to *us*. But perhaps if we found as natural and compelling as Plato and Aristotle and their contemporaries must have done the idea of spirited desires as a distinct and special *kind* of desires, aimed at active agency and competitive self-promotion, we would not be making these demands in the first place. Perhaps then we would have understood Aristotle in this way from the beginning, without having to be told explicitly at every point about the special role played by spirited desire in the constitution of moral virtue.[42]

4

Rule and Exception: On the Aristotelian Theory of Equity

JACQUES BRUNSCHWIG

'For what is indeterminate, the rule (κανών) also is indeterminate (ἀόριστος), like the leaden rule used by the Lesbian masons: instead of being rigid, this rule bends and adapts itself to the shape of the stone' (*EN* 5. 14. 1137ᵇ29–32). No one seems to know what exactly this famous comparison means in technical terms; but it symbolizes rather well, in the eyes of many modern commentators, the 'flexibility' of Reason, or even the plurality of Reasons, for Aristotle.[1] Its fame, however, should not make one lose sight of the audacity and paradox in speaking of an 'indeterminate rule'. For either such a rule enables one to determine what one must do in a given case—and then how is it indeterminate? Or else it does not—and then how is it a rule at all? To avoid getting ourselves caught in this dilemma from the outset, we must keep in mind first of all that the comparison with the Lesbian mason's measure occurs in a very precise context: not that of practical reason in general, nor that of φρόνησις, but that of 'equity' (ἐπιείκεια). The concept of ἐπιείκεια which Aristotle develops has a good chance of providing a precise and suitable vantage-point from which to study Aristotelian rationality, not of course in its entirety, but at least one of its characteristic aspects.[2] It is with this in view that I would like to take up an

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[1] On this theme in general, see the excellent book by Berti (1989).

[2] The 'rehabilitation' or 'renaissance' of Aristotelian practical reason, or of practical reason of an Aristotelian type, in many contemporary historical and philosophical studies has still focused more, it seems, on the notion of φρόνησις than on the notion of ἐπιείκεια. See Aubenque (1963) (who, however, devotes many forceful pages to equity; pp. 42–4, 151–2) and the work of the German school, usefully enumerated and synthesized by Berti (1990) and Volpi (1990).

inquiry in homage to one of the most equitable friends of Aristotle
and of reason whom I have ever had the good fortune to know.

The Aristotelian theory of equity is primarily worked out, as is
well known, in chapter 5. 14 of the *Nicomachean Ethics* and in
chapters 1. 13 and 1. 15 of the *Rhetoric*. The essential part of it is
contained, as Aristotle himself says, in the following definition:
'This is the nature of the equitable: it is a correction (ἐπανόρθωμα)
of the law where it is defective (ἐλλείπει) owing to its universality
(διὰ τὸ καθόλου)' (*EN* 5. 14. 1137ᵇ27–8). The first point of this
definition is that equity is situated and determined in relation to the
law, which is a first-order rule subject to deficiencies. It is the
appropriate way to correct the rule, that is, to treat legitimate
exceptions to the rule correctly.

The notion of 'correction', however, raises as many problems as
it solves. If there are cases in which the shortcomings of the law
should be 'corrected', are there second-order rules which enable
one to identify these cases? And, supposing that one could deter-
mine some such rules, are there other second-order rules which
enable one to treat the exceptional cases identified by the first kind
in the appropriate way? These two types of second-order rules—if
there are any such rules—must be distinguished from each other
and articulated. For it is clear that one must know *that* one is
dealing with an exceptional case before one can think of asking
how it is appropriate to deal with it. But it is equally clear that one
can know *that* one has to deal with an exceptional case without
knowing so much as *how* it is appropriate to deal with it. One must
have what I will call 'that-rules' as well as 'how-rules'.

These theoretical questions also have a historical dimension. In
view of the legacy, philosophical as well as non-philosophical, of
prior uses of the term ἐπείκεια, and in view of the history of the
problems which the corresponding Aristotelian notion takes upon
itself, is Aristotle effectively responding—through his conception
of equity—to a theoretical need for and conscious worry about
determining second-order rules of this kind? Can one find in his
theory evidence of an ambition to arrive by means of that theory at
a sort of restructuring of the whole field of juridical reasoning?

The study I am proposing will proceed in several stages. I will
start with a rather widely held interpretation, which traces the
Aristotelian theory of equity back to two relatively heterogeneous
sources: one is the traditional usage of the term ἐπείκεια; the other

is the philosophical discussion (primarily Platonic) of the problems concerning the application of law. I will then examine those particular aspects of each of these legacies which seem to me the most important for an analysis of Aristotle's position. Lastly, the theory itself will be examined, on the basis of texts in the *Nicomachean Ethics* and the *Rhetoric*. The connecting thread of the inquiry will be a critical investigation of the problems in identifying 'laws of nature' with the Aristotelian rule of equity.

THE TWO SOURCES OF THE
ARISTOTELIAN THEORY OF EQUITY

To get clear about these ideas, I will start with the following interpretation, which can be found in various guises:[3] in his theory of equity, Aristotle brought about (with a success more or less complete depending on the texts one considers, and the interpretation one gives of those texts) a synthesis between two distinct conceptual legacies: first, a traditional or popular legacy, in which ἐπείϰεια is contrasted with justice and is identified with indulgence; second, a philosophical legacy, more precisely Platonic, which turns on a fundamental problem for practical and juridical reason, that of knowing how the law, inevitably universal, can be applied to cases which are always particular, presented by experience. It has been justly remarked that in the many lengthy discussions which Plato devotes to this problem (*Statesman*, *Laws*), he makes no appeal to the notion of equity:[4] if the approximate generalities of the law make victims of some, the wrongs suffered by those victims seem to be, in his eyes, as unavoidable as their cause. To put it schematically, then, Aristotle inherited a double legacy: on the one hand, a certain conception of equity as indulgence, and on the other hand, a conception of the law as necessarily and irremediably approximate. From the first perspective, that of equity as indulgence, exceptions to the law are themselves treated in an

[3] See notably Gauthier and Jolif (1959); Georgiadis (1987); Hamburger (1951). Other important references concerning ἐπείϰεια: Kuypers (1937); Michelakis (1953); Romilly (1971, 1979); Shiner (1987); Schroeder (1981); Von Leyden (1985). Several publications relevant to the subject have unfortunately been inaccessible to me: Barden (1981); D'Agostino (1973); Opocher (1977); Radin (1934).

[4] See notably Hamburger (1951: 89 ff.).

exceptional way, that is, without truly rational rules to govern this treatment. From the second perspective, that of the inadequacy of the law, the absence of rational rules which can remedy that inadequacy prevents exceptional cases to a law from being taken into account and treated appropriately.

Let us then suppose, at least provisionally, that Aristotle imported the notion of equity, charged with its traditional connotations of indulgence and leniency, into a domain where it had not been used before, and that he did it to respond to a theoretical problem concerning the application of law, a problem which had been clearly posed already, but without reference to that notion. It now remains for us to find out what was gained by this move. Was it that the *sentiment* of indulgence was called in to take care of the 'deficiencies' of the law, that is, to come to the aid of reason seen as incapable of reckoning with the infinite variability of human reality? Or was it that Aristotle developed the notion of a higher juridical *reason*, and a concept of entirely rational equity, purified of any trace of the 'sentimental'?

According to Gauthier and Jolif (1959: II. i. 431–4), the two solutions coexist in the texts of the *Rhetoric* and the *Ethics*, in spite of their incompatibility; however, *EN* 5. 14 marks the difficult but unmistakable victory of the second solution over the first. Here is the essence of what the two authors write on this point (pp. 432–3):

[L']identification [traditionelle] de l'équité et de l'indulgence, qui a pour résultat de situer l'équité hors du domaine du droit, se retrouve en certains textes d'Aristote: voir *EN* 6. 11. 1143ᵃ21–2. . . . la *Rhétorique* offre des textes qui relèvent manifestement de deux inspirations différentes et qui ne peuvent être conciliées . . . selon les uns, l'équité se ramène à la loi non écrite qui est source d'indulgence (voir notamment I. 13. 1374ᵃ26), selon les autres, elle est l'expression de la loi inscrite dans la nature des hommes, la norme du droit naturel, et elle ne s'oppose qu'à la loi écrite (15. 1375ᵃ27). C'est à cettte seconde solution que s'arrête fermement l'*Éthique à Nicomaque* [5. 14]: l'équité n'y est pas définie comme indulgence, elle n'est pas en dehors de la sphère du droit, elle est au contraire source de droit, et d'un droit supérieur, puisque inscrit dans la nature. Le progressisme juridique reçoit ainsi sa justification et son régulateur à la fois, et la théorie aristotélicienne de l'équité marque une étape importante dans l'histoire du droit.

The spatial metaphors on which the text of Gauthier and Jolif plays ('hors du domaine du droit', 'en dehors de la sphère du droit')

are not very clear and too crude. They are not very clear, because, without a precise clarification of the relation which the authors establish between what is legal (le 'droit') and what is just (le 'juste'), one is left to wonder whether what they call the 'domaine du droit' is or is not delimited by the spheres in which it makes sense to speak of justice and injustice. They are also too crude, because one is left wondering whether the equitable falls 'en dehors de la sphère du droit' only if it bears no relation at all to what is just, or whether it is sufficient for the equitable to be in a relation of opposition to the just for it to fall 'en dehors de la sphère du droit'. I will thus begin by considering some aspects of the pre-Aristotelian history of the concept of ἐπιείκεια (and only some, since that complex and nuanced history has already been told several times, and indeed very well[5]) to see if these metaphors can be given a precise content, and thus to judge whether the claims which they serve to express are well-founded.

THE TRADITIONAL SOURCE

In one sense, it is undeniable that, in dealing with ἐπιείκεια, Aristotle inherits a double legacy: he is a witness to it himself. For he distinguishes a wider sense of ἐπιεικές, a term of approbation without any particular descriptive content, from a narrow sense, which is determined by its relation to the notion of justice, δίκαιον (*EN* 5. 14. 1137ᵃ35–8). The wider sense is situated undisputably 'en dehors de la sphère du droit': it can convey any kind of moral or social approval.[6] This wider sense is extremely vague, and Aristotle is not interested in it primarily. However, it is not without impor-

[5] See Romilly (1979, esp. pp. 53–63): 'Un mot qui s'ouvre à la douceur: *epieikēs*'.
[6] 'Sometimes we praise what is ἐπιεικές and the ἐπιεικής man, so that even to praise other things (καὶ ἐπὶ τὰ ἄλλα) we apply by extension (μεταφέρομεν) the term ἐπιεικές instead of the term "good", meaning by "more ἐπιεικές" "better".' I understand 'τὰ ἄλλα' in the following sense: we praise things, men, or actions which one could not describe as 'equitable' in the narrow sense (better than a certain kind of justice) in describing them as ἐπιεικές. A glance at the references given by Bonitz (1870: 271ᵇ30–272ᵃ8) confirms that Aristotle very often uses the term in the sense of simple approval, notably when applied to an individual moral agent (ἐπιεικής then being equivalent to σπουδαῖος or to χρηστός, and opposed to φαῦλος) or to a social category (the ἐπιεικεῖς are thus the γνώριμοι, and are the opposite of the πλῆθος or δῆμος). Naturally one is not obliged to follow Aristotle when he considers this wider sense as a 'metaphor' of the restricted sense.

tance, nor without influence, and we should keep it in mind. For in a way it delimits the range of narrower senses the term ἐπιείκεια can take: in the complex relations it has to justice, the ἐπιεικές in the narrow sense could not take on a signification which ran contrary to the positive connotations it draws from the ἐπιεικές in the wider sense. One can see, for example, that the puzzles which open *EN* 5. 14 are concerned with the equitable in the narrow sense, since they arise precisely from the apparent conflict among several linguistic uses and current beliefs (ἔνδοξα) about the relation of the equitable to the just. But they are provoked by the conceptual burden, so to speak, of the equitable in the wider sense: it is this which requires that, though distinct from the just, which is praiseworthy, the equitable in the narrow sense be itself praiseworthy.

If, therefore, the ἐπιεικές in the wider sense, vaguely equivalent to 'good', is clearly 'en dehors de la sphère du droit', one must say, by contrast, that the ἐπιεικές in the narrower sense does belong to that sphere. It belongs there at least in the minimal but hardly negligible sense that the question of 'equitable' action arises only when such an action is an alternative to a 'just' action; and this is true both when equity seems like indulgence, and in those cases, if there are any, where equity consists in applying a higher norm drawn from 'natural law'. The history of the word shows that equity and justice regularly appear as two attitudes which compete in the same agents, in the context of the same situation, and with respect to the same relations, whether it be a relation between gods and men or a purely human relation.[7] That these two terms semantically complement one another is underlined by the fact that, when they are put in contrast, they are then transformed: justice, and sometimes equity, must be qualified by descriptive and evaluative specifications in order to leave intact the positive connotations of equity that might otherwise be jeopardized by its opposition to what is in principle always positive, that is, justice.[8] Aristotle himself gives a more abstract expression to that same interactive rela-

[7] See e.g. Herodotus 3. 53. 4: 'Many people prefer what is more equitable (τά ἐπιεικέστερα) to what is just (τῶν δικαίων)' (in a speech by the daughter of Periander, who approves of this preference); Euripides, frag. 645N: 'the gods judge what is equitable (τἀπιεικῆ) to be preferable to justice (δίκης)'.

[8] See e.g. 'unconditional justice' (μόνην τὴν ἁπλῶς δίκην), Sophocles, frag. 703N; 'arrogant justice' (τοῦ αὐθάδους δικαίου), as opposed to 'mild equity' (τὸ πρᾶον ἐπιεικές), Gorgias, *Epitaph*, frag. DK 82B6.

tion between the two notions, in his proposed solution to the puzzles: the equitable is not better than the just without qualification, but better than a certain kind of justice, that is, legal justice. Hence, the equitable is distinct from this kind of justice and higher than it, while being just itself. *τό τε γὰρ ἐπιεικὲς δικαίου τινὸς ὂν βέλτιόν ἐστι δίκαιον, καὶ οὐχ ὡς ἄλλο τι γένος ὂν βέλτιόν ἐστι τοῦ δικαίου, EN* 5. 14. 1137ᵇ8–9. The relation of the equitable to the just thus makes clear why the appropriate distinctions in the concept of justice must be made—distinctions which would not be necessary if the narrow concept of equity conveyed by the *ἔνδοξα* and by tradition did not belong to the 'sphère du droit', at least in the sense indicated.[9]

The traditional notion of equity thus maintains a special tie with the idea of justice in general, which places it, in one sense at least, in the 'sphère du droit'. However, inside this sphere there is a palpable tension between equity and justice, in so far as these two notions are distinct and even opposed. The history of the uses of *ἐπιείκεια* is a sufficient witness to this tension. But was there throughout this history simply a tension between 'indulgence' and 'strict justice'? I would like to show, by two particular observations, that this is not exactly right.

First observation: if one examines one of the oldest extant occurrences of the concept of the *ἐπιεικές*, in the *Iliad* 23. 537, one realizes that originally there was no special link between equity and *corrective* justice. The appeal to what is *ἐπιεικές* is made in a Homeric description of a typical problem of *distributive* justice, that is, the allotment of prizes after the famous chariot-race of book 23. This example also shows that the traditional notion of equity is not especially associated with the idea of indulgence, which is necessarily related to some punishment; the indulgence of the judge, the softening of legal punishment, do not appear from the start as actions characteristic of the virtue of equity.

I will briefly sketch the relevant Homeric scene. The situation is in principle extremely simple: five prizes of decreasing value have

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[9] Let us add a supplementary proof, *a contrario*, of the solidarity between the two notions. They give way at the same times: where one does not belong, the other also has no place. This is the case in the field of international relations, where no laws exist: as Romilly (1979: 59) rightly points out, politicians who favour a relatively 'mild' attitude toward foreign cities, such as Diodotus in the Mytilene affair, take care to make it clear that they are *not* moved by the motivations of pity or of *ἐπιείκεια* (Thuc. 3. 48).

been established for the winners; five competitors started the race, and have arrived at the finishing-line one after the other. The conclusion seems simple: one prize to each contestant, in the order of arrival. However, Achilles proposes to award the second prize to Eumelos, the last to arrive: he is 'the best', says Achilles, and he was the victim of an accident during the race. Such a decision would, according to Achilles, conform to what is ἐπιεικές, and immediately 'everyone approves'. All, save the one who actually arrived in second place,[10] Antilochus, whose violent objection is enough to suspend Achilles' suggestion. The episode illustrates well the complex relation between rationality and equity, such as I have outlined above: Achilles has reasons for proposing *that* the first-order rule be suspended, and he articulates them (the merit of Eumelos, the accident); but he does not have reasons to justify *how* he proposes to regulate the problem posed by that suspension (why give the second prize to the last to arrive, rather than the first or the third?). He says that the solution he proposes is ἐπιεικές; but it seems to him either impossible or unnecessary to say in what respect and why it is. It is the poet, through the voice of Antilochus, who speaks of the *sentiments* of friendship and pity which may have been moving him (23. 548).

How is the conflict resolved? So that the ἐπιείκεια which favours Eumelos does not unjustly wrong Antilochus, Achilles gives up the proposal. He grants Antilochus the prize which he won, and sends for a supplementary prize from his stores to give to Eumelos. As for the fifth prize, now unawarded, he gives it to the old and venerable Nestor, who had not competed. It is surely significant that the text does not indicate how this third solution, which satisfies everyone, should be described: is it 'even more just' than the first arrangement, 'even more equitable' than the second? All one can say is that the first conflict between what is just and what is equitable leads to the collective invention—through outbursts and quarrels—of a practical if not conceptually perspicuous solution. That solution is definitely a little rudimentary, but its success shows that it does its job. It juxtaposes a component where one applies a first-order rule of justice (the first four to arrive will earn the first four prizes), and a component where neither caprice nor arbitrari-

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[10] By means of a notorious trick, which itself raises new disputes. I will skip over the details.

ness, but rather auxiliary rules, are applied (to give consolation prizes to contestants who have suffered bad luck, and honorary prizes to those who are advanced in years and in prestige, who did not compete). The implicit appeal to auxiliary rules is materially realized in a way by the introduction into the game of an additional prize and recipient.

In this Homeric episode, where neither simple justice nor ἐπιείκεια has the last word, one can observe a situation in which the notion of equity cannot bear its narrow sense (which puts it in contrast with 'strict' justice) without jeopardizing the positive connotations which it draws from its wider sense. That is why Achilles' suggestion, presented as an ἐπιεικές alternative to the just solution, gives way in turn to the third solution, whose advantages are described neither in terms of equity nor in terms of justice (for want of having at hand an ad hoc distinction between strict justice and 'higher' justice). One can see rather well, from this, that the notion of equity cannot be solidly grounded in the domain of distributive justice: for in that domain, the suspension of a first-order rule of justice, to the advantage of an Eumelos, always has a good chance of wronging an Antilochus somehow.

In contrast, in the domain of corrective justice, which is not concerned with the distribution of goods among several recipients, but solely with the punishment of a single guilty party, it seems that the 'equitable' attenuation of a legal punishment need not have an undesirable counterpart: if A suffers less of an evil than he deserves, it is not inevitable that there be a B who suffers more than he deserves. Hence the constant association, so frequent that it need not be emphasized, of the notion of ἐπιείκεια and all the notions which turn on relaxation of punishment or extenuation of a penalty ('comprehension', pardon, indulgence, leniency).[11]

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[11] Aristotle recognizes this link and he testifies to it; see e.g. *Rhet.* I. 13. 1374ᵇ10–11 (τὸ τοῖς ἀνθρωπίνοις συγγινώσκειν ἐπιεικές). One must note. however, that he assigns συγγνώμη to the framework of intellectual virtues (*EN* 6. 11. 1143ᵃ19), whereas he studies ἐπιείκεια in the context of ethical virtues (see the remarks by Shiner 1987: 179 n. 14). The two virtues are certainly connected (γνώμη or συγγνώμη judges correctly what is truly ἐπιεικές); but the fact that Aristotle analyses them separately at different locations is enough to stop one from thinking that he wanted to 'intellectualize' entirely the values of equity which it received from a tradition dominated by 'sentiment'. The author of *MM* 2. 1–2 seeks to distinguish εὐγνωμοσύνη, a disposition to judge in a certain way, and ἐπιείκεια, a disposition to act in accordance with such a judgement. In the *Rhetoric*. the association of equity, *in the juridical context*, with

One should note, however—and this will be my second observation on this point—that even in the domain of penal justice, the positive connotations of ἐπιείκεια are still not secure. For indulgence toward the guilty can appear to be an injustice towards the victim or towards his or her representatives, or even a danger for society (complaints about the laxity of judges are not unique to our time). In this context, I would be tempted to explain the emergence and spread of a new and interesting development of the notion of ἐπιείκεια, fairly near the end of the pre-Aristotelian history of ἐπιείκεια. When the philosophers of the fourth century inherit the legacy of common beliefs about ἐπιείκεια, they give a special place to the definition which analyses it in terms of ἐλάττωσις, that is, in terms of reduction, lessening, or concession. The man who is ἐπιεικής in this sense is a man who 'cuts back on' his *own rights*, who renounces pursuit of and claim to their complete recognition. This definition, which one might call 'reflexive', seems in the various contexts where it appears to come from a common conception.[12] This development is understandable: in fact the only domain in which ἐπιείκεια is conceptually protected, so to speak, against any danger of losing its positive sense is that in which the person who is harmed by the suspension of a first-order rule is the *same person* who proposes that suspension, or who accepts it. The man who is ἐπιεικής in the sense that he is ἐλαττωτικός (one can obviously no longer translate this by 'equitable') harms no one but himself: one can commend whole-heartedly the moderation (*EN* 5. 12. 1136ᵇ20), the 'grace' of one who wrongs no one but himself.

indulgence, mildness, and attenuation of punishment is obvious: the analyses of equity are situated in the general framework of the study of courtroom eloquence (ch. 1. 10–15); see 1. 13. 1374ᵇ10 ff. (which has no parallel in *EN* 5. 14); 15. 1375ᵃ23–4 and 29 (when the context seems to show that the athetesis of καὶ προτρέποντα καὶ ἀποτρέποντα in ᵃ26, suggested by MS A and adopted by Spengel, is perfectly justified; cf. ᵃ23–4, which would otherwise have to be ruled out, as Cope and Sandys do (1877 *ad loc.*)).

¹² Besides the passages cited in the *EN*, see Ps.-Plato, *Def.* 412b (the first definition of ἐπιείκεια as δικαίων καὶ συμφερόντων ἐλάττωσις); Arist., *Top.* 6. 3. 141ᵃ16 (the same definition of ἐπιείκεια as ἐλάττωσις τῶν συμφερόντων καὶ δικαίων, rejected nevertheless as redundant, 'the just being a type of usefulness'); *MM* 2. 1. 1198ᵇ26 (the ἐπιεικής man is ὁ ἐλαττωτικὸς τῶν δικαίων τῶν κατὰ νόμον). On the details of this last definition, cf. below, n. 14. For an interesting concrete description of behaviour dictated by ἐπιείκεια (see 736d7) understood as ἐλάττωσις (see ἐλάττω, 736c2), see Plato, *Laws* 5. 736d e).

The context of the passage of the *Nicomachean Ethics* which I
cite here (5. 12. 1136ᵇ15 ff.) shows why that 'reflexive' conception of
ἐπιείκεια spread, as a result of pre-Aristotelian developments in its
use. Here Aristotle examines two connected puzzles: (1) If A re-
ceives from B more than he deserves, is it A himself, or is it B who
commits the injustice? It seems evident that it is B. (2) Is it possible
to do an injustice to oneself? This second puzzle is linked to the
first, for if the fact of A's having received more than his due results
from a voluntary decision of B's to allot himself less than is his due,
and if one agrees that B has done an injustice in what happened, it
is to himself that B has done an injustice. But B falls under the
definition of an equitable man as ἐλαττωτικός: he decides to receive
less than his share. Lest he turn out both blameworthy (for being
unjust) and praiseworthy (in so far as he is ἐπιεικής), one must refine
the analysis by saying that B inflicts *harm* on himself voluntarily,
but that he does not do an *injustice* to himself.

   With the conception of ἐπιείκεια as ἐλάττωσις, we touch precisely
on the point where ἐπιείκεια falls in a strict sense 'en dehors de la
sphère du droit'. The ἐλαττωτικός man is the very person who does
not take advantage of his rights before a tribunal, which would
obviously be the appropriate place to insist on them. As Aristotle
indicates (in a remark which otherwise squares rather badly with its
context, *Rhet.* I. 13. 1374ᵇ19–21), he prefers to submit to an arbitra-
tor rather than to a judge.¹³ At the end of its pre-Aristotelian
development, ἐπιείκεια has made itself as small as possible, if the
metaphor be allowed, so as to dodge all blows. In its 'reflexive'
sense, two of its most essential characteristics have been preserved
without difficulty: the idea that it is the opposite of a strict applica-
tion of the rules of justice (legal and inflexible), and the idea that it
is in principle something praiseworthy. But it comes at a price, for
the realm of ἐπιείκεια is no longer the place where justice is ren-
dered: it is no longer the equitable judge who is the ἐπιεικής man *par
excellence*, but the ordinary citizen who is moderate and well-

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   ¹³ [To be ἐπιεικής is, among other things,] 'to want to go to arbitrage rather than
to justice; for the arbitrator looks at what is equitable, whereas the judge looks at the
law (ὁ γὰρ διαιτητὴς τὸ ἐπιεικὲς ὁρᾷ, ὁ δὲ δικαστὴς τὸν νόμον)'. The difficulty of under-
standing this in its context has to do with what the sentence seems to imply—that it
is not for a judge to be ἐπιεικής—which the rest of ch. 13 belies.

educated, and has the 'grace' not to insist on a judge's support in a defence of his rights.[14]

THE PLATONIC LEGACY

How did Aristotle come to shift the realm of ἐπείκεια to that of the tribunal? To answer this question, it is necessary to take into consideration Plato's discussion of the problem of the application of law. For it is clear that Aristotle was greatly influenced by Plato in the texts where he describes, following his teacher, the inevitable shortcomings of the law. I should like to concentrate here on the following question: how is one to understand the fact that Plato never brings the notion of ἐπείκεια into his considerations of that problem, and that nevertheless his descriptions are largely revived by Aristotle when he outlines his theory of equity?

To that question one often hears the answer,[15] which relies upon a famous text of the *Statesman* (292d–303d), that Plato and Aristotle describe in similar terms the abstract generality of the law as incapable of going beyond the level of ὡς ἐπὶ τὸ πολύ,[16] but that this description does not have the same purpose for each of them. Plato introduces the concept of a 'kingly science', infallible know-

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[14] The analysis of the notion in *MM* 2. 1. 1198ᵇ24 ff. seems to constitute an objection to this conclusion. The author is obviously trying to show that the conception of ἐπείκεια as ἐλάττωσις is identical to that which defines ἐπείκεια as 'redressment' of the shortcomings of the law. To arrive at that, he specifies that the ἐλαττωτικός only renounces his legal and conventional rights (τῶν δικαίων τῶν κατὰ νόμον), not his natural and true rights (τῶν φύσει καὶ ὡς ἀληθῶς ὄντων δικαίων). He then explains that 'where the legislator is incapable of defining exactly what is due to each and confines himself to speaking in general, the ἐπεικής man is he who gives way (παραχωρῶν), and [only] takes (αἱρούμενος) what the legislator would have wanted, but could not determine in detail'. This explanation seems to me completely unintelligible. First, to be able to say that someone renounces his legal rights, those legal rights must already be perfectly determined. Secondly, if someone accepts that a law be applied to him, which harms him because it is not adapted to his particular case, he will not say that he *takes* what the legislator would have wanted to give him but could not give him, but on the contrary that he *renounces* it. These incoherencies seem to me to speak against the authenticity of the *MM*; above all, they put in relief the incompatibility of the two conceptions of ἐπείκεια which the text tries in vain to unify.

[15] See esp. Aubenque (1963: 43): 'la lettre des formules est la même chez les deux philosophes, mais l'esprit en est opposé'.

[16] It seems to me that Aristotle's interpreters sometimes forget that this expression is often used by Plato in that context: see *Plt.* 294e, 295a; *Laws* 9. 867e, 875d.

ledge for which laws can only be a substitute, and which can remedy the shortcomings of those laws, at least in principle, because those shortcomings are essentially due to human ignorance. Aristotle, by contrast, says expressly that the origin of the shortcomings of the law is to be found neither in the law itself, nor in the legislator, but 'in the nature of the thing itself' (ἐν τῇ φύσει τοῦ πράγματος, *EN* 5. 14. 1137ᵇ19); it is 'the matter of practical affairs' (ἡ τῶν πρακτῶν ὕλη) which is directly responsible for this. Therefore, no science could remedy this, even in principle. Aristotle's equitable man, who re-dresses these shortcomings without recourse to any particular sci-ence, would thus constitute the diminished figure to which Plato's king is reduced in a human world stripped of transcendental norms.[17]

Although it is difficult to extract a doctrine from the sinuous and nuanced discussions of the *Statesman*, I believe that this picture of the situation is open to a few criticisms of minor points and one objection of principle. First, some criticisms of particular details. It does not seem exactly right to say that when Aristotle attributes the shortcomings of the law to 'the nature of things', he differs funda-mentally from Plato, who would attribute them only to human ignorance. It is true that in the *Statesman* Plato introduces the image of an 'arrogant, ignorant (ἀμαθῆ) man who would never allow anyone to do anything against his orders, nor to question him in any way, not even in unforeseen circumstances' (294b–c). But that image was not meant to illustrate the law as such; it illustrates a blind and rigid way of applying it. Likewise, the act of legislation is not in itself a sign of ignorance: within the group (already ideal) of those who possess the 'kingly science', Plato distinguishes ex-plicitly (295b2–3[18]) a subgroup still more ideal, so to speak—that of those wise kings who can do without legislation entirely. The other

[17] See again Aubenque (1963: 44): 'Si, chez Platon, la loi était un substitut de l'infaillibilité de la science, chez Aristote c'est l'équité qui est un correctif de la faillibilité de la loi. . . . Le chef, selon Platon, tel le pilote qui "garde son attention fixée sur le bien du navire et de ceux qu'il porte" (*Plt.* 296e–297a), avait les yeux fixés sur l'Idée de Bien. Mais sur quoi l'homme de l'équité aurait-il les yeux fixés, dans l'effondrement ou du moins l'exil de la Norme transcendante?' Putting it more banally but with the same thought, Michelakis (1953: 28) developed the idea that Aristotle is relying here on Plato, but that his rejection of the theory of Forms is the reason for the differences between the two.

[18] 'If there were someone capable of it [sc. of sitting beside each person all through his life in order to prescribe to him exactly what he should do], *among those who possess the kingly science*, he would hardly put obstacles in his own way by

subgroup is composed of those who, though wise, do not give up
being legislators. What sets them apart from the 'arrogant and
ignorant man' is that they do not slavishly impose their own laws,
and that their knowledge allows them to modify these laws wisely,
like a doctor who on his return from travels abroad draws up new
prescriptions for his patients (295c–296a, 300c). The flexibility of
these legislators, underwritten by their knowledge, is certainly the
opposite of the rigidity of the reign of law, which Plato accepts, as
a δεύτερος πλοῦς, at the end of the discussion (297d–e, 300b–c,
301a). Note, however, that the break between this second-best
solution and the leadership of 'those who have knowledge' is not
complete (300c5[19]). The paradox seems to me to be solved thus:
what is described here as second-best is not written legislation in
contrast to 'kingly' freedom from the need for legislation. Rather,
it describes a certain blind and rigid way of applying written legis-
lation in contrast to a flexible application of it by the possessor of
the 'kingly science'. Thus it is entirely possible for a written code to
be in itself an 'imitation of the truth', while being applied blindly
and rigidly (i.e. 'second-best').

Be that as it may, the Solonian connotations of the image of a
legislator abroad have prepared the way for an objection of prin-
ciple. Nowhere in the discussion of the *Statesman* does Plato
consider penal legislation in particular; the figure of the judge,
distinct from the legislator and responsible for the application of
the penalties prescribed by the laws to particular cases, is entirely
absent from discussion in the *Statesman*. What interests Plato here
are the positive prescriptions which govern the lives of citizens:
essentially, constitutional legislation, and, no doubt, civil law as an

framing these supposed laws.' The genitive partitive τῶν τὴν βασιλικὴν ἐπιστήμην
εἰληφότων seems to imply strongly that some among those who possess the kingly
science do not have the power to control each person at each instant, and therefore
have recourse to legislation. Furthermore, since the power to control each person at
each instant is a conceptual chimera (whereas the kingly science is not), one can
conclude that anyone who has the kingly science would have to have recourse to
legislation.

[19] 'These laws would be imitations of the truth when they are based as far as
possible on the instructions of those who have knowledge (παρὰ τῶν εἰδότων).' Cf.
also 300b1–3.

[20] See 294c–295a (ἐπιστατήσοντα τοῦ δικαίου πέρι καὶ τῶν πρὸς ἀλλήλους συμβολαίων).
Generally, the role of the law and that of the legislator are described in terms of
prescription, not interdiction: see 294b2 (τὸ βέλτιστον ἐπιτάττειν), e2 (τὴν τοῦ
λυσιτελοῦντος ... ποιεῖσθαι τάξιν); 295b1 (προστάττειν τὸ προσῆκον), etc. It is at the
level of the δεύτερος πλοῦς, i.e. that of rigid application of the law, that the expres-
sions of prohibition and penalization appear (297d–e).

auxiliary.[20] Whether at the level where legitimate rectifications, i.e. those of the wise legislator, can be made, or at the level of the δεύτερος πλοῦς where they cannot be made, Plato indicates neither how the difficulties which might present themselves in the application of the law to particular problematic cases are to be identified, nor how they are to be treated.

At the first level, legitimate adjustments to the law do not make up for the gaps left in the margins by the ὡς ἐπὶ τὸ πολύ generality of the law; they are meant to respond to changes in circumstance affecting all the citizens equally and simultaneously.[21] This is why the adjustments take the form of a new legislation,[22] which presumably is better adapted to the new circumstances taken as a whole, but is as 'rough' as the original legislation with respect to individual cases. In the medical and gymnastic model, which accompanies the whole of the discussion, the athletic trainer 'imposes on the whole group the same exercises, he makes them start and stop at the same time, whether in a race, a wrestling-match, or any other physical exercise' (294e). The level of difficulty of these exercises is probably fixed low enough for almost everyone to be able to complete them and high enough for almost everyone to benefit from them; but the trainer is not particularly concerned about those for whom it is really too easy or too difficult. But such disregard for particular cases would be inconceivable in the domain of penal legislation, where the institution of the trial and the practice of opposing arguments by the prosecution and the defence require one to take into account the particularities of each case. Such disregard is more understandable in the domain of prescriptive legislation, where it matters little whether, for example, certain citizens are more virtuous than others in doing by themselves what is prescribed by the law, or even in doing more than or better than what is required by law.

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[21] It is very remarkable that, in the medical analogy, Plato does not mention the adaptation of treatment to particular individuals: the expert doctor, returning from abroad, will modify his prescriptions 'if conditions have become better for his patients, due to winds or some other unforeseen modification in the regular climate' (295c–d).

[22] See in the medical analogy 295c7–8 (παρ' ἐκεῖνα τὰ γράμματα τολμήσειεν ἄλλ' ὑποθέσθαι); at the political level, 296a–b. The rest of the text, which introduces the idea of individualization into the medical analogy (296b5–8), is expressly presented as a re-examination of the preceding considerations from a new point of view (296b2–3); the political parallel comes back in the text when the collective level is taken again into consideration (see 296e4; 297a4, b2–3).

Thus, when Plato's kingly legislator revises his code, he does not do the same work as Aristotle's equitable man; one cannot say that the concept of the former vacates a place for the latter to occupy. At the level of the δεύτερος πλοῦς, however, one might be tempted to think of the function of the Aristotelian concept of equity as already represented in its opposite, in the *Statesman*, where Plato, recommending the most extreme rigour in the application of the laws (297d–e) seems to condemn any relaxation of penal law, that is, any 'correction' of what is legally just for the sake of what is equitable. However, things are not like this at all. For notice that the rigour of which Plato speaks here does not concern ordinary criminality at all; it has to do solely with what one might call political criminality. It is clear that in recommending 'death and capital punishment' (297e1–2) for 'those who would dare to do what is against the law', Plato is not thereby advocating the gallows for chicken-thieves; these punishments are for offences against the constitutional and legislative system, not particular transgressions against such-and-such a law.[23] The severity which he recommends for the former tells us nothing of the strictness or leniency which he thinks necessary in the treatment of delinquents and criminals in common law.

Let us therefore conclude that in the *Statesman*, Plato poses none of the questions to which the Aristotelian theory of equity is a response: ἐπιείκεια for Aristotle does not pretend to occupy a theoretical space prepared for it by the *Statesman*.

It might be said, with reason, that the situation is different in the *Laws*, where one finds a number of analyses (especially 9. 874e–875d, that is, the prelude to the laws concerning reciprocal assaults, wounds, and mutilations) which can serve as a transition for us where the *Statesman* could not. For, on the one hand, Plato repeats his descriptions in the *Statesman* of the inevitable shortcomings of the law; on the other, he now moves, like Aristotle, into the territory of penal law. This prelude, which is meant to demonstrate the necessity of having laws, insists on their being second-best to the kingly science, and on their inevitable generality, in terms very close to those of the *Statesman* (though Plato seems to be still more

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[23] I suppose that the expression παρὰ τοὺς νόμους, which recurs several times in this context (297d10, 300b1; see 300c1, d1, d5; 301a2–3), makes an allusion to the procedure of indictment for proposal of unconstitutional measures (γραφὴ παρανόμων).

pessimistic about the possibility of there actually ever being a
'kingly man'[24]). Despite these parallels, the text of the *Laws* is
different from that of the *Statesman*, and comes closer to the
Aristotelian texts, in the way the problem of the application of law
is posed, if not in the way it is resolved.

In fact, the transfer of the analysis of that problem to the area of
penal law brings with it a major transformation, namely, the emer-
gence of two distinct roles which did not appear in the *Statesman*:
that of the legislator, who attaches penalties and fines to the differ-
ent categories of crimes, and that of the judge, who imposes those
penalties and fines on those known to have committed acts falling
under those categories. Thus the figures of the legislator and judge
constitute a framework common to Plato's analysis in the *Laws* and
Aristotle's—though one should take into account the fact that the
Plato of the *Laws* obviously takes the point of view of a legislator
who is relatively autonomous, whereas Aristotle envisages the
problem as centring on a judge working within the framework of
existing legislation. For Plato, legal code defined by a legislator is
imposed on the judge, and it usefully bounds his power of decision:
it is impossible to give him *carte blanche*. On the other hand, acts
and circumstances 'who has harmed whom, how, when?' 875e1[25])
are infinite in kind and unforeseeable in their diversity, and so it is
impossible to leave nothing to the discretion of the judge. Not only
must one leave it to him to determine 'whether the deed, in each
case, took place or not' (875e5–6[26]); but one must also leave him a

[24] See 875a–d. When Plato says that the gift of kingly knowledge 'is not realized
anywhere or in any way (ἀλλ' ἢ κατὰ βραχύ)', 875d3, I think that a temporal sense
must be given to κατὰ βραχύ ('except for a short time'), not a quantitative sense ('que
petitement', Diès). The general idea of the passage is that of inevitable corruption,
in time, of the kingly man who is given autocratic power and who need not account
for his actions (see ἐμμεῖναι and διαβιῶναι, 875b5–6). There is an incompatibility in
principle, not between human nature and possession of the kingly science, but
between human nature and durable possession of that science.

[25] It is certainly not by chance that Aristotle too, in dealing with the same
problem, takes up legislation concerning assault (*Rhet*. 1. 13. 1374ᵃ32–5). See the
parallel between questions posed by Plato (875e: τὸν τί τρώσαντα ἢ τίνα ἢ πῶς ἢ πότε
λέγεις) and by Aristotle (1374ᵃ32: τὸ τρῶσαι σιδήρῳ πηλίκῳ καὶ ποίῳ τινί).

[26] πότερον ἐγένετο ἢ οὐκ ἐγένετο διαβιῶτον τούτων. See *Rhet*. 1. 1. 1354ᵇ13: περὶ δὲ τοῦ
γεγονέναι ἢ μὴ γεγονέναι, κτλ. Throughout this introductory passage of the *Rhetoric*,
where he recommends leaving to the judge only the smallest margin of discretion
possible, Aristotle seems to be getting very close to Plato's thoughts on this subject.
Moreover, what he says is not easily compatible with his subsequent considerations
concerning equity (see in particular his wary description of the motivations of the
judge, 1354ᵇ8–11).

certain amount of discretion in determining punishments and penalties, that is, in applying particular provisions of the law to individual cases. Even if that law contains many detailed specifications, these can simply never address all the particularities of a case and its circumstances.

To be more precise, how should one distribute the tasks between the legislator and the judge? Plato's response to this question is rather complex, and interesting in its own right. One must first take into consideration the moral character of the judges, and the political and social conditions under which they are working. If one were in the 'unfortunate predicament' of having to legislate for judges who were working under the conditions of the Athenian 'theatrocracy' (876b; cf. 3. 701a), one could entrust them with determining penalties only 'in the least important cases' (περὶ σμικρότατα, 876b8–c1), and one would have to legislate explicitly on the 'most numerous cases' (τὰ πλεῖστα, c1–2). The contrast between σμικρότατα and πλεῖστα is obviously not very clear: does it have to do with degrees of importance or degrees of frequency? Presumably both at once, since Plato contrasts this situation further on with that in which the judges are 'well-educated' and the legislator need not bother with explicit instructions 'in the most important and frequent cases' (τὰ μέγιστα καὶ πλεῖστα, 876d1–2). Reasoning from this, the logical conclusion should be the following. In the 'theatrocratic' situation, the legislator directs the precise course to which the judge must adhere in the most serious cases, which are also the most frequent to come before the court; and he must leave the judge a certain margin of freedom in the less serious cases, which are also those brought less frequently to court. From this perspective and at this level of the Athenian type of 'theatrocracy', the structure of the law thus conforms exactly to what was assigned to it in the prelude (875d4–5): it takes into consideration only the ὡς ἐπὶ τὸ πολύ generality of the law. On the other hand, in the city of the *Laws*, the legislator need not be wary of judges who are 'harmonious' (ἐμμελεῖς, 876d5). They can therefore be granted a great deal of discretion because of their experience, their juridical expertise, and their moral intuition. In principle, the law would have to be concerned only with rare and marginal cases, only those which might perplex the judges, in spite of their many abilities. According to this, then, the logic of the passage results in a paradoxical reversal of the image of the

law offered in the prelude. For theoretically, it is the proven wisdom of the judges which should handle the most frequent cases—without recourse to a written code; and it is the law which should anticipate how to settle unforeseen or unprecedented cases, which lie in the margins of the ὡς ἐπὶ τὸ πολύ generality of the law.

However, Plato resists this line of reasoning. He cuts it off without any argument (οὐ μὴν ἀλλ', 876d7), and returns to giving a justification of a system of penal legislation meant, he says, to 'draw a sketch (περιγραφή) and outlines (τύποι) of penal laws, to show by these models (παραδείγματα) to the judges [of the city of the *Laws*] how never to overstep the bounds of justice' (876d–e[27]). One would expect, after this transition, to find a simple 'outline' of legislation prohibiting assault and battery, legislation which would grant the judges of the city of the *Laws* a large measure of discretion, as befits the good education which sets them apart from the judges of the 'theatrocratic' city. But, in fact, Plato does not seem to follow up on the distinction between the two kinds of judges. The virtues of the first kind had already been pushed pretty much into the background in the passage where Plato explained that legislation is not needed in the most important and numerous cases, 'which even the less well-educated judges can discern' and treat adequately (876d2–3). From this new perspective, one cannot be completely surprised to see Plato set forth for the judges in the city of the *Laws*, not a simple outline, but a long and detailed legislation concerning assault and battery (876e–882c), which distinguishes a great number of types of cases, and plans with precision the different kinds of punishments which are to be applied to them. The power of discretion left to the judges is not nil, but it is generally limited to the assessment of damages; there are only a few cases in which they can determine their verdicts within a margin defined by an upper and lower limit. Moreover, Plato does not concern himself with saying whether there are rules or principles which enable the judges to decide, when they can, between a maximum and minimum

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[27] Plato makes constant use of this image in the *Laws*, as he himself notes. See in particular the difficult passage of 11. 934b–c, in which the image of the legislator-painter recurs in the description of his relations with the judge: in the cases where the law itself expressly grants the judge the power to determine penalties and fines, the legislator, 'like a painter, sketches (ὑπογράφειν) the work which will complete his picture' (? ἔργα ἐπόμενα τῇ γραφῇ).

punishment.[28] It is clear, in any case, that nothing disposes them systematically to lean towards a minimal penalty, that is, towards indulgence. The circumstances of a case might be mitigating, but they might also be aggravating.

One can see, therefore, that ἐπιείκεια plays no role in the entire passage we have considered; and that absence is so much the more spectacular for the fact that, in a sense, one could say that Plato has prepared a place for it. He describes a place for problematic cases by means of a spatial metaphor which is echoed in Aristotle: 'it seems that the boundaries of some things do not touch one another, but there is a borderland (μεθόριον) which stretches between the two boundaries, touching both and mediating between the two' (878b). But the description of this no-man's-land between two neighbouring rules is not at all meant to make a place for treatment ('equitable' or otherwise) of singular and problematic cases, which do not fall clearly under one rather than the other of two rules. Rather, it is meant to make it possible to consider a *type* of case which requires specific treatment, because it falls, as a type, between two other types of well-defined cases: namely, assault committed under the influence of anger, acts which Plato had earlier described (867a–b) as 'intermediate between voluntary and involuntary', given that they bear 'a resemblance to each of the two terms' of that distinction. The 'borderland' thus delimited can then be neatly recovered by the appropriate series of legal provisions concerning this particular category of actions (878b–879b).

To conclude this Platonic excursus, let us say that Plato, in spite of appearances to the contrary even in the *Laws*, is not interested in the problem that the Aristotelian theory of equity will attempt to resolve.[29] Though he describes the inevitable generality of the law in terms that Aristotle will exploit, he does not concern himself with the difficulties which it raises, except by making his legislation

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[28] c.g. 878d4–6, e8–9; 879b4; 880c1–2, d1–2.

[29] Note that Plato often uses the words ἐπιεικής and ἐπιεικῶς (rarely the word ἐπιείκεια), but generally in the wider and vaguer sense of simple approbation. In a passage of the *Laws* (6. 757d–e), he gives ἐπιεικές a more precise sense in associating it with σύγγνωμον, and he does not hide that he thinks ill of it: 'equity and indulgence are always infractions (παρατεθραυμένον) of what is perfect and exact, to the detriment of true justice (παρὰ δίκην τὴν ὀρθήν)'. One need appeal to it only for reasons of circumstance and in cases of unforeseen circumstances, when the strict application of geometrical equality has a good chance of upsetting the masses and provoking στάσις.

highly specific—and this only pushes further back the problems that concrete cases pose. However, this attitude on Plato's part is very understandable. For the description of the law as necessarily inadequate works to situate the legal order firmly at a level below the ideal. If one could find a solution to its difficulties, it would no longer be what one was concerned to show it as being; one would have granted with one hand what one explicitly wished to deny with the other.

ARISTOTLE, *NICOMACHEAN ETHICS* 5. 14

I now turn to Aristotle. Earlier, I claimed, as a working hypothesis, that in his theory of equity, he realized a synthesis between the traditional legacy carried by the term ἐπείκεια and the philosophical legacy of the problem of the application of law. First, I would like to show that there exist, in his works, traces of his consideration of the elements to be brought together in that synthesis, and of his conscious efforts to reconcile them to one another.

The crucial point of the question appears in chapter 5.14 of the *Nicomachean Ethics*, where Aristotle sets forth, on the one hand, the use of the notion of ἐπείκεια to solve the problem of the application of penal law, and on the other, the description of the ἐπεικής man as ἐλαττωτικός, a description which captures one of the principal elements of the traditional legacy, as we discussed earlier. The chapter falls into two parts: the first and longer part concerns τὸ ἐπεικές, which has been called 'value-equitable' ($1137^a31-{}^b34$), and the second concerns ὁ ἐπεικής, the man who possesses 'virtue-equity' ($1137^b34-1138^a3$).[30] Although Aristotle presents his description of the equitable man as derived directly from his analysis of equity (φανερὸν δ᾽ ἐκ τούτου, 1137^b34), it has often been noted that there is 'a certain lack of correspondence' between the two parts of the chapter.[31] According to Georgiadis, the rectification of what is

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[30] I borrow this distinction between 'value-equitable' and 'virtue-equity' from Georgiadis (1987).

[31] See Georgiadis (1987: 165–6): 'What strikes one in reading these lines [1137^b34-38^a3] is a certain lack of correspondence between the value-equitable, discussed above, and the virtue-equity presented here. What characterizes this virtue, considered here to be a modality of the virtue of justice, is the attitude of making concessions and lessening demands in spite of one's legal rights and dues. The rectification of the legally just *seems* to be the only feature which value-

legally just is the sole trait common to the value-equitable and to the virtue-equity, but it does not have the same sense in the two cases. The equitable rectification of what is legally just does not at all imply a 'concessive spirit', but consists only in the reparation of gaps in the law. Conversely, the 'concessive spirit' of virtue-equity in no way implies reparation of gaps in the law. This discordance between the two parts of chapter 5. 14 reflects a difference in conceptual genealogy between the value-equitable, which is of philosophical origin, and virtue-equity, which is of popular origin.

It seems to me, however, that one can almost completely eliminate the 'lack of correspondence' noted by Georgiadis, if one examines the two parts of the chapter more closely. In the first part, Aristotle has set out his theory of the value-equitable as 'correction of the law where it is defective owing to its universality'; the context is clearly that of the law, and more precisely, as revealed by a comparison with the parallel texts of the *Rhetoric*, that of penal law.[32] Typically, it is a *judge* who is equitable. When at the end of the chapter, Aristotle remarks briefly that what he has said about τὸ ἐπιεικές can easily be applied to define the equitable man, ὁ ἐπιεικής, as 'the one who chooses and does such acts', one can then assume that Aristotle is still thinking of the equitable judge. However, immediately afterward he offers—in terms which do not allow one to see immediately whether it is a different description of the same person, or the description of a different person[33]—the following description of the equitable man: he is 'the one who is no stickler in matters of law when it is for the worse (ὁ μὴ ἀκριβοδίκαιος ἐπὶ τὸ

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equitable and virtue-equity have in common. The problem is, however, that this rectification has a different meaning in each case. (*a*) The rectification of the legally just in the case of value-equitable does not entail a concessive spirit but only the filling out of the gaps in the law. (*b*) Conversely, the concessive spirit of virtue-equity does not entail any filling out of gaps in the law. It is clear that value-equitable and virtue-equity belong to different conceptual genealogies. The origin, of course, of virtue-equity is popular, whereas the doctrine of value-equitable has a philosophical origin.'

[32] See the texts of the *Rhetoric* mentioned above, n. 11.

[33] The construction of the phrase is rather ambiguous, it seems to me (ὁ γὰρ ... καὶ ὁ ... ἐπιεικής ἐστι). The presence of two articles might make one think that Aristotle is describing two different characters. However, the common factor of ἐπιεικής ἐστι (as well as the clause ἡ ἕξις αὕτη ἐπιείκεια, which follows) might suggest that he is giving two different descriptions of the same character. The debate does not seem to me able to be settled by syntactic considerations.

χεῖρον), and who accepts less (ἐλαττωτικός), although he has the law on his side'. This last formulation is easily recognizable as a version of the widespread definition of ἐπιείκεια as ἐλάττωσις. We could characterize this definition as 'en dehors de la sphère du droit', since the ἐλαττωτικός is precisely the citizen who, through moderation, good education, and 'grace', voluntarily renounces some of his rights, and does not insist on them in court. If one thinks that Aristotle's version of the definition lines up exactly with the other versions found elsewhere, then it captures the essence of a virtue which is appropriate not to the equitable judge, but to the accommodating citizen; and one is thus led to conclude that Aristotle, in lines 1137ᵇ34–1138ᵃ3, maladroitly (and carelessly) juxtaposed these two figures.

However, if one looks at the text more closely, and if one compares this version of the definition of the ἐπιεικής man as ἐλαττωτικός with the other available versions, one has the distinct impression that, though the current versions apply to the accommodating citizen, the version in the *Nicomachean Ethics* was refashioned so as to suit the figure of the equitable judge. To be sure, certain elements of that account are indeterminate enough to apply to the one as well as to the other. But the phrase ἐπὶ τὸ χεῖρον can only be understood, it seems to me, in reference to the equitable judge. The accommodating citizen, in fact, renounces his rightful claims to what would play *to his own advantage*; it is the equitable judge who suspends application of a law which would work *to the detriment* of the accused.[34] Therefore, the two descriptions of the ἐπιεικής man, in 1137ᵇ35–1138ᵃ2, are ultimately, if I am not mistaken, two descriptions of the same man, that is, the equitable judge; and the second was reworked in order to fit him. Here one can see, it seems to me, that Aristotle has consciously endeavoured (in the *Nicomachean Ethics*, at any rate) to adapt the current

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[34] An objection to this has indeed been made, that one could understand the expression ὁ μὴ ἀκριβοδίκαιος ἐπὶ τὸ χεῖρον in a different way: not 'the person who is not a stickler in matters of the law when it is for the worse', but 'the person who is not ἀκριβοδίκαιος in the bad sense of the word'. This description would apply then to the accommodating citizen, as well as to the equitable judge. However, in the context, it seems to me that the word ἀκριβοδίκαιος (which appears to be a *hapax* for Aristotle) is not in general so likely to be taken in a good sense for it to be necessary to specify that it must here be taken in a bad sense. And besides, ἐπὶ τὸ χεῖρον in its classic sense seems to mean 'in the direction of the worst' (see Plato, *Rep.* 2. 381b–c).

notion of ἐπείκεια–ἐλάττωσις for it to re-enter the 'sphère du droit', and thus to unify the double legacy to which he was heir.

Therefore, one can easily grant Georgiadis that the 'concessive spirit' of virtue-equity, such as may be manifested in the ordinary citizen, neither implies gaps in the law, nor tries to make up for such gaps. (He who, for one reason or another, makes no claim on all that is rightfully his surely does not do so because he thinks that the law which determines his rights is insufficiently precise; on the contrary, he can only take that stance because the law is quite precise.) But these considerations become less relevant—and certainly do not lead one to conclude that there is a 'lack of correspondence' between the two parts of the chapter—if one sees in the ἐλαττωτικός of 1138ᵃ2 the figure of the equitable judge, who 'does not stick to the letter of the law when it is for the worse, and who mitigates <the punishment of the accused>, although he has the law on his side <sc. if he wished to apply it rigorously>'.[35]

Let us now consider the other side of the supposed 'lack of correspondence' between the two parts of the chapter. As we have seen, Georgiadis maintains that reparation of the gaps in the law does not by itself imply any intervention of a 'concessive spirit'. One can grant him this point—indeed, one should go further than he does here, if at least one takes seriously the notion of 'gaps' in the law. Let us suppose, for example, that a judge must rule on a case which falls under no existing law (for example, when someone has committed an act which intuitively seems felonious or criminal, but which is nowhere explicitly prohibited[36]). In such a case, a strict application of the law would result in a dismissal of the case. It will then be on *its* part that we will find 'indulgence'. The reparation of apparent gaps in the law could not be entrusted to the judge, at least in a state ruled by law where no one can be convicted except by reference to a law enacted and in force at the moment when he was acting. Only the legislator can intervene to complete the gaps

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[35] An additional advantage of this interpretation is that it fills in a silence which would otherwise be rather strange: if one could not apply to the judge the attribute μὴ ἀκριβοδίκαιος ἐπὶ τὸ χεῖρον, one would find *nothing*, in ch. 5. 14, which indicates explicitly that 'redress of the law' by ἐπείκεια is always rendered by an *attenuation* of the legal penalty, not by an eventual increase of that same penalty.

[36] Technological progress can set up similar situations: in the modern world, familiar examples are furnished by the uses of computer technology, *in vitro* fertilization, genetic engineering.

of a law, by means of a law making punishable in the future the type of action in question.

But does Aristotle conceive of the 'shortcomings' or 'defects' of the law on the model of such 'gaps', of apparent 'holes' in the fabric of existing legislation? One can show, on the basis of the analysis in Shiner (1987) in particular, that he did not. The cases where it is legitimate to make an appeal to equity are not, according to Aristotle, the cases where there is no existing written legal code concerning that type of act; they are the cases where there exists a perfectly applicable law, but where a mechanical or blind application of it would result in a verdict which would be too severe according to the moral intuitions of the judge and those of the society in which he works. The only concrete example concerning equity in Aristotle's texts, that of a man with an iron ring on his finger who strikes another person (*Rhet.* 1. 13. 1374ᵃ31–ᵇ1), is clear on this point: far from being silent on such a case, the law speaks, but it misspeaks. Strictly speaking, the law does not manifest 'gaps', but 'deficiencies' in the etymological sense of the word, i.e. it 'falls short'.

The distinction between the image of a 'gap' and that of a 'deficiency' might seem tenuous.[37] However, it has important implications. If equity were to 'fill in the gaps' of the law, two *independent* norms would be imposed on the decisions of a judge: that of positive law, when it is explicit, and that of ἐπιείκεια when the first is silent. Discrimination of cases where the law speaks and where it is silent as such would depend on neither equity nor justice: it would not be a question of ethical virtue, but only a technical question of reading and knowing the legal code.

It is completely different if equity redresses the 'shortcomings' of the law. Indeed, it is not enough to read the legal code to be able to recognize the cases where the law falls short. What is required here is an evaluation of the consequences of its application in particular cases, and not simply a recognition of its gaps. What is more, the criteria of that evaluation must also be at work when determining those cases where the law *does not fall short*, and where it should therefore be applied rigorously. The norms of legal justice and of

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[37] See Shiner (1987: 182–3), notably the following: 'The ἐλλείπειν image . . . does not connote "gaps" in the "hole-in-a-doughnut" sense. The image, rather, connotes a distance between things, a falling-short.'

ἐπείκεια thus function, not independently (one intervening when
the other quits), but both under the control of a higher norm (what
I earlier called a 'that-rule'), which determines the cases where
legal justice has sway, and those where it must yield to equity.
Aristotle, to be sure, gives no precise name to this higher norm. It
should not be confused with legal justice, which could not deter-
mine by itself cases where its application should be suspended, nor
with equity, which cannot determine by itself those cases where it
should *not* come into play. Nor is it clear that it can be identified
with that higher justice which justifies the suspension in certain
cases of legal justice (1137^b7–11, 25–6); for Aristotle does not seem
inclined to say that, in normal cases, the application of legal justice
must be legitimized explicitly by that higher justice. This is no
doubt the reason why he designates the higher norm only by the
discreet use of the adverb ὀρθῶς, both when it is a matter of describ-
ing the shortcomings of the law (1137^b14, 16), and when it is a
matter of describing interventions by equity (1137^b22). The notion
of 'redress' is obviously bound up with the notion of 'correctness',
and this clearly plays a theoretical role essential to Aristotle's
thought, since he attributes knowledge of this to the legislator,[38]
and since it is only in relation to it that the judge can determine the
'defects' which the law contains and the 'rectifications' which
equity enjoins.

Thus Aristotelian ἐπείκεια—at the end of this preliminary
examination of the relevant chapter of the *Nicomachean Ethics*—
does not seem to be a suspension, without principle and unregu-
lated, of legal rules, nor simply a foray 'hors du domaine du droit'.
It does not make sudden interruptions in the course of legal justice,
to disturb or stop it. Rather, the possibility of its intervention is
anticipated and sanctioned by the legislator; it is up to the judge to
bring this about or not, in accordance with the higher norm which
directs the judge towards rigour or towards flexibility. There is a
rule for determining either *that* one must apply a rule, or *that* one
must suspend it. Equity comes into play (and it does so clearly
under the guise of indulgence) when it is a matter of knowing *how*
to resolve cases of suspension of a rule. But it is distinct from the

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[38] See 1137^b17: οὐκ ἀγνοῶν τὸ ἁμαρτανόμενον. If the legislator does not ignore the
shortcomings in the law, he does not ignore the norm with respect to which these are
shortcomings.

higher-order rule which governs its coming into play; this higher-order rule can close the door to indulgence as well as open it. The role quietly but explicitly entrusted by Aristotle to this higher norm, which controls the application of the law and intervention of indulgence and thus arbitrates between them, exhibits his attempt at a synthesis and reconciliation of the two heterogeneous traditions to which he was heir, not just a mere juxtaposition of them. Equity as indulgence is not set aside; it is taken and integrated, under the control of a higher norm, into a theory meant to resolve problems in the application of law, problems which Plato had described without attempting to resolve.

ARISTOTLE, *RHETORIC* 1. 13 AND 15

Can one now give a more precise meaning to, first, the norm of 'correctness' whose function is to provide a 'that-rule' for equity, and secondly, to the 'how-rule' which determines how equity is to function? Here we encounter the problem of the pertinence of the idea of 'natural law' to the interpretation of Aristotle's thought,[39] though here, of course, the question will be posed only in view of the problem of equity.

According to certain commentators, as we have seen, natural law takes the relay-baton from positive law when it falls short; and this constitutes the 'source of law' grounding equity, at least in the most mature versions of Aristotelian thought. Nevertheless, *EN* 5. 14, which has been supposed to set out that doctrine 'firmly' (Gauthier and Jolif 1959: II. i. 433), makes no appeal to the ideas of 'universal law' or of a 'law of nature' in its analysis of equity. Only in certain passages of the *Rhetoric* does one find juxtaposed the notions of equity and universal law. I will devote the last part of this study to these texts of the *Rhetoric*.

First, a general remark. The reader to whom the *Rhetoric* is addressed is neither a legislator nor a judge, nor an honest man who cares about moral progress; the reader is clearly an orator, and, more precisely, in the chapters in which equity is discussed, a

[39] On the difficulty of situating Aristotle in relation to the traditional opposition of jusnaturalism and of positivism, see esp. Schroeder (1981), which I was able to consult thanks to the kindness of Gisela Striker.

court orator.[40] That this specific point of view is taken presumably explains why Aristotle does not carefully treat in the *Rhetoric* the question of when it is and when it is not appropriate—from the point of view of the higher norm of 'correctness'—to suspend the application of a law and make an appeal to equity: the defendants are concerned only to know when such a suspension would or would not benefit their cause. When Aristotle analyses the example to which I have already referred (that of a law which prohibits assault with an iron weapon, and of a man who strikes another with an iron ring on his finger), he describes that example in rather simple terms: the man in question, though he is guilty according to written law, is not 'according to the truth' (1374^b1). This quick appeal to the norm of truth contrasts with the *Nicomachean Ethics*, which would appeal to the norm of 'correctness' in such a case. It is explained by the point of view distinctive of the *Rhetoric*: the lawyer's interest is in presenting the innocence of his client as a fact which he can confidently state; whereas the judge, in the same situation, takes up for himself the problems in evaluating the case (did he strike with his ring intending to augment the force of the blow of his fist? would the effect of the blow have been the same even if he had not been wearing it? etc.).

With the same degree of simplification, Aristotle presents as 'evident' (φανερόν, 1374^b2) the inference based on the definition of the ἐπιεικής man, which allows one to distinguish between acts which do and do not deserve to be treated with equity, that is, indulgence. One must treat differently, he says, mistakes (ἁμαρτήματα), injustices (ἀδικήματα), misfortunes (ἀτυχήματα). So far so good—but this differentiation hardly gets us anywhere, since Aristotle's definitions of these three categories of actions are no less general than the legal descriptions of misdemeanours and crimes (theft, injury, adultery, sacrilege, treason, etc.[41]); rather they are more so, and the problem of determining the concept under which a given concrete action falls is formally identical in the two cases. One can therefore conclude that the three different categories are intended for defendants rather than for judges: they furnish defendants with instruments for pleading their case, so that they can argue a case as falling under one concept rather than

[40] See above, n. 11.

[41] See the justly famous passage on ἐπίγραμμα (the descriptive label for a given misdemeanour or crime), 1373^b38–1374^a17.

another. But the judge will find these definitions of no more or less help in his task than the legal code which he is responsible for applying.

Generally speaking, one of the main difficulties of the *Rhetoric* is that it is not always easy to distinguish those ideas and doctrines of which Aristotle approves from those with which he furnishes orators as instruments that will help make them capable of arguing persuasively for opposing theses.[42] With regard to the *Rhetoric*'s analysis of equity, however, the distinction is relatively easy to make, since we can compare it with the *Nicomachean Ethics*. That comparison allows one to see that the theory of chapter 1. 13 of the *Rhetoric* corresponds fairly exactly with that of chapter 5. 14 of the *Nicomachean Ethics*, with a few differences (which are not, however, without interest, since they contain a number of additional details and specifications). But chapter 1. 15 of the *Rhetoric*, which is devoted to a 'cursory' examination of the 'so-called non-technical proofs', and which contains several considerations regarding equity, has no parallel in the *Nicomachean Ethics*.

On the basis of this comparison, I would like to establish two negative points: first, that the *Rhetoric* does not support identification of 'natural law' as the source of equity; secondly, that it does not take the idea of natural law very seriously.

One striking difference between *Rhet.* 1. 13 and *EN* 5. 14 is that the *Rhetoric* expressly defines equity, not simply with reference to 'legal justice', but more precisely with reference to 'the particular written law [of such-and-such a city, as opposed to "universal law"]'.[43] It is this particular written law which is in some cases defective, sometimes unbeknownst to the legislators, sometimes due to the nature of the law, of which they are fully aware.[44] Clearly it would be tempting to think that the identification and reparation of their mistakes depends on a universal and unwritten law, that is, natural law. That conclusion, however, does not follow. For at the beginning of chapter 1. 13, Aristotle makes two distinctions: a distinction between the particular determinate laws of each city, and a law common to all men, which is 'in accordance with nature',

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[42] See naturally 1. 1. 1355ᵃ29–38.

[43] See 1. 13. 1374ᵃ25–8.

[44] The opposition ἀκόντων versus ἑκόντων (1374ᵃ28–31) does not signify that the legislators make some of their errors voluntarily; it signifies only that they are fully aware that the universal nature of the law makes some of them unavoidable.

independent of any community or contract; and secondly, a distinction among particular laws between written and unwritten law.[45] Redress of the shortcomings of a particular written law may therefore depend not only on universal law, but also on particular unwritten law, that is, on the customs, mores, and specific moral intuitions of a given social and political group. Notice, in any case, that the notions of universal law and of natural law do not appear in the section of chapter 1. 13 which is devoted to equity (1374^a18- $^b22$), not even in the final passage (1374^b10-22) where mention of them would have been made, if Aristotle had so intended.

One can go even further than this negative finding. Equity is responsible for repairing the 'shortcomings' of a particular piece of legislation; it follows from this that its range of intervention and of application must also be particular. This is clear when one considers the 'shortcomings' due to unintentional want of foresight of the legislators: legislators in different cities are negligent on different issues. But the situation remains fundamentally the same when one considers the shortcomings of which the legislators are fully aware, and which result from the inevitable generality of written law. It is no doubt a universal rule that universal rule cannot cover all individual cases. But that universal rule itself can only be realized by being instantiated: though all laws are inevitably general, their *degree* of generality may vary, and it must vary considerably from city to city, depending on several factors. A maritime city, an agricultural community, a commercial centre, for example, would each have more detailed and provident legislation than the others in the area of its dominant activity. Other differences will come from differences in political regime, in mores and traditions, etc. The universal law, which is 'the same everywhere', would therefore be unable to serve as a rule permitting one to discern the problems in the margins of particular legislative codes. It cannot serve as a 'that-rule'.

Nor can the universal law serve as a 'how-rule'. Among the indications which the *Rhetoric* seems to make concerning 'how-rules' (1374^b10-22), the only one which also appears in the

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[45] I think there is no need to concern myself here with the problems of reconciling this passage with the beginning of ch. 1. 10 (1368^b7-9), where in contrast the distinction between particular law and universal law is superimposed exactly on the distinction between written and unwritten law.

Nicomachean Ethics is the celebrated appeal to 'the intention of the legislator',[46] to which I will return in a moment. But even now one can see that it is impossible to maintain both that the equitable judge redresses the defects of the law in saying 'what the legislator himself would have said if he had been there', and that he redresses them in the name of natural and universal law. For the legislator did *not* legislate universally. His system of laws is particular in many respects: the constitution of the city,[47] its specific system of values, etc. Indeed, by encouraging the judge to refer to the intention of the legislator, Aristotle implicitly counsels him not to trust in 'prophetic intuitions' ($\mu\alpha\nu\tau\epsilon\acute{\upsilon}o\nu\tau\alpha\acute{\iota}$ $\tau\iota$ $\pi\acute{\alpha}\nu\tau\epsilon\varsigma$, 1373[b]7) about 'universal justice common to all by nature', which, like everyone else, he might think he has. So much the more reason that one should mistrust those affective motivations which could interfere with one's judgement (I. I. 1354[b]8–11), since it is all too easy to cover those motivations with a coat of respectability by invoking such intuitions.

This interpretation implies a certain dose of irony in Aristotle's attitude to natural law. One will object perhaps that he twice quotes the sublime words of Sophocles' Antigone in order to clarify the idea of natural law.[48] That is true, but one should notice—as has not been done enough—the context in which he makes these quotations. That context is actually rather compromising. For Aristotle could have explained Antigone's conduct by referring it to some natural, universally recognized law (obedience to the gods, respect owed to the dead, the eminently natural character of family ties, by contrast with civic ties); but he puts it in parallel with 'natural laws', of which the least one can say is that they are very far from being universally recognized, e.g. the prohibition of the slaughter of animals, forbidden by Empedocles, and the condemnation of slavery, denounced by Alcidamas as contrary to nature and to God's intentions.[49] But not only are these two prohibitions cheerfully violated by the greater part of humanity known to Aristotle (and probably

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[46] See *Rhet.* I. 13. 1374[b]11–13 and *EN* 5. 14. 1137[b]22–4.

[47] On the principle according to which legislation is subordinate to the constitution, see among others, *Pol.* 3. 11. 1282[b]10–11; 4. 1. 1289[a]13–15; 6. 5. 1319[b]37–1320[a]4.

[48] I. 13. 1373[b]9–13 and I. 15. 1375[a]33–[b]2.

[49] As is well known, the quotation of the Messenian speech of Alcidamas, absent from the MSS, has only been preserved for us in a scholium. See on this point the surveys in Guthrie (1969: 159) and Narcy (1989).

by Aristotle himself), but, furthermore, most people of that time
violated them most of the time, without the slightest twinge of an
uneasy conscience. Not everyone shares with Empedocles the idea
that the prohibition of slaughter of animals is a universal law, and
that it is not just a law 'just for some and not for others'; Alcidamas
had no more partisans than he. How could these examples illus-
trate the idea of an 'unwritten universal law, which seems to be well
known to all men' (*Rhet.* 1. 10. 1368ᵇ8–9)? And why did Aristotle
not illustrate that notion by drawing from a traditional repertoire
of much less paradoxical examples of 'unwritten laws', such as
those which command respect for parents or gratitude towards
one's benefactors?[50]

To answer that question, one should notice that Aristotle hardly
ignores these traditional precepts; rather, he assigns them a differ-
ent status from that of a 'law of nature'. He mentions them in a
passage (*Rhet.* 1. 13. 1374ᵃ21–5) where they come to take a place
precisely symmetrical to that of equity. Next to just and injust acts
(τῶν δικαίων καὶ τῶν ἀδίκων) 'which [particular written] laws ad-
dress', there are others which these laws do not address and which
are themselves 'unwritten', ἄγραφα, in the sense that the written
laws do not address them. (Nothing indicates that there are 'un-
written laws' which do address them.) These 'unwritten' acts of
justice and injustice are of two kinds, which are distinguished in
terms of excess (καθ' ὑπερβολήν) and deficiency (ἔλλειμμα). We have
already encountered the second kind: it corresponds to equity,
reparation of the 'deficiencies' of written laws. The first is defined
as 'excess' with respect to written laws; the examples given for it are
acknowledgement of one's benefactors and support of one's
friends. These are not legal obligations and no one could be pros-
ecuted for having failed to meet them. The only sanctions at
work—when one respects or transgresses them—are those of the
moral and social order (praise or blame). Since Aristotle presents
the 'hyperbolic' prescriptions of social morality as defined, nega-
tively, by the silence of the written laws with regard to them, and,
positively, by the moral sanctions which are attached to them by

[50] One finds a list of obligations of this kind (respect for the gods, for one's
parents, for one's benefactors) in the famous passage of Xenophon's *Memorabilia*
(4. 4. 19–25) on unwritten laws, and in a whole series of texts, many even more
ancient, which tend to organize them in a sort of 'trilogy' of commandments (see
Romilly 1971: 36–7; Ostwald 1973: 93).

society, it seems plausible to me that Aristotle considers them individual, or 'culture-dependent', if you like, due to the twofold particularity of the written laws, which do not speak of them, and the values of society which control them. One could object to this interpretation that he borrows his examples from a repertoire of prescriptions which are generally taken to be dictated by universal unwritten laws. However, the precision with which he describes the rewards and sanctions attached to them (not only praise and blame, but 'censures, honours, and decorations', 1374ª22–3) allows one to answer the objection: it is clear enough that each city will leave the imprint of its own values on the distribution of such rewards and punishments.

The symmetry between the 'hyperbolic' prescriptions of social morality and the 'elliptical' prescriptions of equity is thus not as artificial as it might appear at first blush. Neither is taken care of, in the Aristotelian organization of the concepts in question, by 'universal law in accord with nature'. This enables one to understand the paradoxical examples Aristotle uses to illustrate that last notion. These examples are, in fact, the best he could have chosen to indicate two things: first, that the universal law contains positive prescriptions (what is just according to nature is what a certain type of unwritten law addresses, and not merely what the written law does not address), and secondly, that these positive prescriptions are in a relation of *direct* opposition with those of the particular law (whether it be written or not[51]). In contrast with acts of 'hyperbolic' justice, which the ordinary citizen can perform perfectly well in addition to his obedience to the written laws, respecting 'natural justice'—such as Aristotle illustrates[52]—is incompatible with obedience to the laws and customs of the city. They are two masters both of which one cannot serve at the same time. With respect to the very same practical questions, they are exactly on the same level, in the sense that when one says yes, the other says no; their conflict is as irreducible as that between Antigone and Creon. As the antithesis of the particular law, the universal law speaks in order to

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[51] Creon's decision had been made public, but by a proclamation. It is an oral interdiction, as Aristotle calls it by using the word ἀπειρημένον (1373ᵇ10).

[52] Here I am actually relying on the *examples* given by Aristotle at 1373ᵇ9–18, which verify that whole opposition between natural law and positive law. I have no opinion on whether the opposition in question is conceptually linked, for him, to the notion of natural law.

contradict it, but it speaks at the same time as the former and on the same subjects as the former. It seems that its role cannot be to take care of a particular law's silences or deficiencies, to cover up where it is excessive and to remedy what is deficient.

So if the analysis of equity, at the end of chapter 1. 13, makes no appeal at all to the notion of universal law which was presented at the beginning of that chapter, I believe there are good reasons for this. It remains to consider chapter 1. 15 of the *Rhetoric*, in which it is undeniable that universal law and equity are presented as closely connected (1375ᵃ28–33). Now to find on the basis of this (as Gauthier and Jolif do, 1959: II. i. 432–3) that this chapter contains the most mature and original version of the Aristotelian theory of equity, establishing as its ground a law higher than written law, i.e. natural law, inscribed 'on to human nature'—this is a step which seems to me illegitimate to take.

First of all, as I have already noted, Aristotle expressly devotes this chapter to a 'cursory' (ἐπιδραμεῖν) examination of the 'so-called non-technical proofs' (περὶ δὲ τῶν ἀτέχνων καλουμένων πίστεων, 1375ᵃ22–3): it is a matter of the use an orator can make of documents and admitted facts which figure into his case, by contrast with the arguments he 'invents' (1. 2. 1355ᵇ35–9). In this context, one can hardly expect to meet points of great doctrinal importance.

In fact, the orator should make use of 'universal law' only under strict conditions, depending on the relation the case he is pleading has to the legal code; and Aristotle's recommendations to the orator illustrate neatly the capacity to argue for opposites which is characteristic of rhetoric as well as of dialectic, according to Aristotle. He does indeed advise the orator to 'make use of the universal law and of considerations of higher equity and higher justice' (1375ᵃ28–9). But this is advice for a very particular case, where 'the written law is in opposition to one's cause' (27–8). A reading of the chapter is enough to show that when the written law supports one's case, one must by all means emphasize its authority, and attempt to dismiss any arguments to the opposite effect (1375ᵇ16–24). Although Aristotle does not say so explicitly, it is clear that he would advise his student, in that kind of situation, to disarm the notion of natural law which his opponent might try to use. Notice, in particular, in the two panels of this 'cynical' or 'Machiavellian' diptych, the fluency with which Aristotle shows

how the famous phrase in the oath of the judges (in Athens, they would swear to judge γνώμῃ τῇ ἀρίστῃ) can be interpreted and manipulated in any way, whether in favour of suspension of a written law or in favour of strict application of that law, if the advocate is skilful in using it to the best effect for his cause (1375ᵃ29–31, ᵇ16–18). Young Antigone is mentioned here again for the first case (1375ᵃ33 ff.); but one must say that Aristotle only mentions her for rhetorical effect.

It is important to see that even in this discussion of the ways an orator can exploit the notion of natural law, Aristotle still continues to distinguish sharply between an appeal to equity and an appeal to universal law. I just quoted his recommendation to 'make use', in the appropriate situations, 'of universal law and (καί) of considerations of higher equity and higher justice'. One might be tempted to take the καί as epexegetical;[53] in this case, the intention of this passage in chapter 1. 15, even if it is only a matter of one passage, would go in the direction of an identification of equity with *the application of the universal law*; and it would effectively be in conflict with that of chapter 1. 13, which only identifies equity as *the non-application of a particular law*. But one must, I believe, reject this interpretation of the passage. For one of the two expressions connected by the conjunction καί is singular (τῷ κοινῷ), where the other is plural (τοῖς ἐπιεικεστέροις καὶ δικαιοτέροις). Neither one is completed by a substantive in the sentence, but clearly the singular τῷ κοινῷ must be completed from the context by νόμῳ,[54] while some other substantive must be supplied for the plural τοῖς ἐπιεικεστέροις καὶ δικαιοτέροις, because it is plural (which could be λόγοις[55]). In this expression, universal law and considerations of equity are kept distinct, as is amply confirmed by what follows (1375ᵃ31–3). Though the equitable and the universal law are both opposites of written law in that both are immutable while written laws change, nevertheless, even within that opposition, the equitable and the universal law remain distinct ('what is equitable is permanent and never changes, *nor does* (οὐδ᾽) universal law'); and it is not to what

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[53] See the translation by Dufour (1960): 'il faut avoir recours à la loi commune, à des raisons plus équitables et plus justes'. More explicitly, Ostwald (1973: 81 n. 34).

[54] Moreover, the more recent MSS give this word.

[55] See the translation by Dufour, above, n. 53. I mention for the record the variant of the *recentiores*, ἐπιεικέσιν ὡς δικαιοτέροις, an 'intelligent' correction by a reader of the *EN*.

is equitable, but only to the universal law, that Aristotle assigns a foundation in nature (κατὰ φύσιν γάρ ἐστιν, in singular).

Moreover, when one proposes to the Athenian judges an interpretation of their oath which encourages them not to stick to the letter of the law, one does not do so by telling the judges that the γνώμη ἀρίστη which they are pledged to follow commands them to apply an unwritten law, the natural norm of a law higher than a city's positive laws. Rather, the oath is interpreted purely negatively, as a recommendation 'not to make absolute use of the written <laws> (μὴ παντελῶς χρῆσθαι τοῖς γεγραμμένοις)'.

All of this points to the same thing: a difference between equity and natural law. To illustrate and emphasize the point, if the advocate for Antigone had gone to Aristotle's school, he would have had to *choose* between two incompatible strategies for the defence. Either, like Antigone herself, he would have argued that she only violated Creon's law in obedience to another law, of divine origin and higher authority; or (at the risk of greatly upsetting his client) he could argue that Creon's law cannot be applied blindly and abstractly to all citizens, whatever their family relation to Polynices might be. Only this second strategy can be characterized as an appeal to the equity of the judges, according to the Aristotelian notion of equity.

The universal law 'in accordance with nature' is thus neither a 'that-rule' nor a 'how-rule' for Aristotelian equity. However, as we have seen, the Aristotelian notion of equity is not that of unprincipled and unregulated indulgence. Where then must one look for the rule for exceptions to the rule?

RETURN TO *NICOMACHEAN ETHICS* 5. 14 AND CONCLUSION

The final section of *Rhet.* 1. 13 seems to furnish a sort of answer to this question, for it contains, if not a rule for equitable judgment, at least a number of principles which can guide it (to 'be tolerant of human weaknesses', to consider 'not the law but the legislator', 'not the written words of the legislator but his thought', 'not the action [of the accused] but his intention', 'not a part but the whole', 'not just what sort of person the accused is now, but what sort of person he has always or most of the time been', etc.). However, there are

good reasons to doubt that Aristotle here intended to furnish the equitable judge with rules for his decision. First of all, the generality of these principles is not any less than that of the laws themselves, and one could always present them as admitting of legitimate exceptions. Secondly, the sheer number of these principles can pose problems: in a given case, the application of one could conflict with that of another (the defendant's past might not match the intention with which he committed an act, etc.). Finally, the principles given at the end of that section ('remember the good done to one rather than the harm', 'be patient when wronged', 'choose arbitration over the judgment of the courts') simply cannot serve as principles capable of guiding the considerations of a judge. Rather, we have here a repertoire of descriptions which an advocate can use to present his client as a person who, being ἐπιεικής himself, deserves to be so treated. We are dealing with an inventory of ways an advocate can ask for the indulgence of the judges, not with an inventory of principles which permit the judges to know whether they should accede to this kind of request.

What is truly striking, and what confirms my analysis above, I think, is that that repertoire of grounds for indulgence is entirely absent from chapter 5. 14 of the *Nicomachean Ethics*, which is addressed to the 'rectifier' of legal justice, that is, to the equitable judge. The only element common to it and the list of *Rhet.* 1. 13 is the famous appeal to the 'intention of the legislator'. The equitable judge 'redresses a shortcoming of the law, in saying what the legislator himself would have said, had he been there, and what he would have put into his law, had he known of the case in question' (1137^b23-4). This is highly significant, and suggests that we have here the fundamental rule of equity according to Aristotle: the 'how-rule' for equitable judgments, of course, since Aristotle presents it as such; but also, implicitly, the 'that-rule', since the judge must consider also the intention of the legislator to be able to discern cases where it is 'correct' to apply the law exactly.

I have already emphasized the negative fact that that principle does not at all constitute an appeal to some universal law, since the 'intention of the legislator' would not be any less particular (less appropriate to the city for which he legislates, to its constitution, its mores, etc.) when he authorizes an exception than when he enacts a rule. In conclusion, I would like to draw attention to the internal duality of that appeal to 'the legislator's intention'. That the formu-

lation Aristotle gives is twofold has not, it seems to me, been appreciated: the judge says (*a*) 'what the legislator would have said if he had been there', and (*b*) 'what he would have put in his law, had he known of the case in question'.[56] Why that duality, and what is the relation between (*a*) and (*b*)? In case (*a*) the judge imagines himself in the shoes of the legislator, who *would say* what must be done in that case, that is, what *he would himself do as judge*; whereas in case (*b*) the judge simply puts himself in the shoes of a legislator who *would write* a supplement to his own law, taking its generality down a notch, but *keeping to his role as legislator*, and leaving it up to the judge to apply the law which he has revised himself.

Now we can examine the relations between that distinction and the relation which the *Rhetoric* (1. 13. 1374ª28–31) introduces between two categories of shortcomings in the law, (1) those which the legislators unintentionally leave, because they 'overlook something', and (2) those of which they are fully aware, knowing as they do that they can only speak in general terms.[57] One can establish the following correspondence between the two distinctions: shortcomings of type (1), due to ignorance of a certain kind of case, are corrected by a judge adopting attitude (*b*); shortcomings of type (2), due to the inevitable generality of the law, are repaired by a judge adopting attitude (*a*). In the first case, the final verdict is based on an imaginary rule which is a more refined law, but still a law; only in the second is the verdict strictly speaking singular, not covered by any general law.

I would like to point out, by way of conclusion, that when analysed in these terms, the Aristotelian theory of equity has a structure parallel to that of the theory of the laws of inductive science. Physical laws, like the laws that make up legal codes, only capture ὡς ἐπὶ τὸ πολύ regularities. In the theoretical domain, there cannot

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[56] An objection has been raised against this that the construction of the phrase is not favourable to this interpretation: for the relative ὅ appears only once, and it can be understood that it is one and the same thing that the legislator 'would have said himself, if he had been present, and would have put into his law, if he had known of the case in question'. It seems to me, however, that one must distinguish in principle between the *individual* decision which the legislator would make if he were present, and the legislative provision, necessarily universal, which he would have put into the law to cover the *type* of case of which he had not been aware.

[57] See above, n. 44.

be a science of the accidental, since this is defined as what happens neither necessarily nor even most of the time (*Metaph.* E2). Induction allows one to state a law which covers the general case but admits of exceptions (e.g. 'as a general rule, hydromel is good for fevers'). From this, one of two things follows: either exceptions are dismissed as accidents, or the accumulation of new experience permits one to cover them through a refinement of the law ('hydromel is good for fevers, except during the new moon'). But this last formulation has the same inductive status as the one before it: it is only valid as a general rule ('as a general rule, hydromel is not good for fevers during the new moon'), and it repels new sets of exceptions.[58] Thus nature comes to be understood gradually and inductively by successive reductions of the sphere of the accidental, reductions which, none the less, never result in the elimination of that sphere.

In parallel, the ὡς ἐπὶ τὸ πολύ generality of the legal code of a state necessarily leaves at its perimeters a margin which is the home of equity, and thus the impossibility of a universal rule of equity corresponds to the impossibility of a science of the accidental. But this margin can either turn out to be irreducible—and this is the case in which the spirit of the legislator is invoked only to invite it to act as judge—or it may be reducible, at least partially, by a supplementary law—and this is the case in which the spirit of the legislator is invoked to refine his own work as legislator. The principal difference between the two domains is that, in the domain of inductive science, accumulated experience normally crystallizes into supplementary laws, directly integrated into the system of knowledge, whereas in the judicial domain, the accumulation of jurisprudence, which corresponds to the accumulation of inductive experience, does not necessarily result in a revision of the legislative code, which would correspond to the expansion of the domain of knowledge. For even when the judge takes the second of the stances defined above, that is, when he applies an imaginary law, that law does not necessarily result in a real law, integrated into the legislative code. That is why, even in this case, a judgment rests 'on

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[58] The bizarreness of Aristotle's example need not obscure the interest of his analysis. By replacing hydromel with penicillin, and the new moon by penicillin-resistant streptococcus, one would obtain at little cost a more respectable version. On the theory of 'inductive statistical' explanation, see Hempel (1965: 382 ff.).

equity'. That it is impossible to dispense with jurisprudence is due to two factors: first, the judge is not entitled to do the work of a legislator himself; he is thus not in a position to inscribe in the legal code the supplementary provisions in virtue of which he made his judgment. Secondly, even if he asked the legislator to revise his law officially, this request could not always be satisfied, for it would encounter not just practical obstacles (the legislative system might become impracticable if it becomes excessively complicated), but in particular, political obstacles. (If Aristotle is not hostile to legislative reforms, he is aware of arguments against their multiplication.[59]) But this is another story, which belongs to the political theory of law, not the judicial theory of equity.

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[59] See the discussion of *Pol.* 2. 8. 1268ᵇ25 1269ᵃ28, on the question whether it is useful or harmful to improve ancestral laws. I take the liberty of referring to my analysis in Brunschwig (1980).

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5

Aristotle's Rationalism

MICHAEL FREDE

As is well known, Aristotle not only claims that all of our know-ledge has its origins in perception (cf. e.g. *APo.* 1. 18), he also in his own practice attaches great importance to the detailed observation of the relevant facts in a given domain. In particular his biological writings give evidence of this, sometimes in an impressive way. Given his theory and given his practice, it is, perhaps, not surprising that Aristotle sometimes is called a 'empiricist'.

It is equally well known, though, that Aristotle also claims that all knowledge, properly speaking, is either knowledge of principles which govern a certain domain, or knowledge by deduction of what follows from these principles. It is not immediately obvious how these two claims go together. One might think that it was Aristotle's view that, though all derivable truths were known, strictly speaking, only by deduction from the principles, the princi-ples of a science themselves owe their epistemic status as known truths to the fact that they can be justified by some kind of infer-ence from what we observe. And if this were the case, one would, indeed, have no difficulty in calling Aristotle an 'empiricist'.

But this manifestly is not Aristotle's view. Aristotle clearly thinks that we have immediate knowledge of first principles. Hence he cannot think that we depend for their knowledge upon their confirmation by what deductively follows from them, let alone upon their confirmation by what we can observe. Our knowledge of them is not a posteriori. They owe their status as known truths to the fact that they are seen by reason to be immediate truths. And since he also thinks that whatever else we know we know by deduc-tion from first principles, that is to say a priori, his view clearly is that all knowledge, properly speaking, is knowledge by reason. Things are known a posteriori only in a debased sense of 'know-

ledge'. That is to say, Aristotle is the paradigm of an extreme rationalist. All strictly speaking known truths are truths of reason, seen to be true by reason, either immediately or mediated by deduction.

There is much that is puzzling about this view. Thus we would like to know why Aristotle insists that all our knowledge has its origins and its basis in perception, if he assumes that all that can be known, strictly speaking, is known by reason. But what makes it particularly puzzling is that Aristotle himself often enough talks as if we could argue for these first principles, as if we could come to know them by inference, indeed, as if we know them by what he calls 'induction' (*epagoge*), an induction at least sometimes based on perception.

In what follows I am not primarily concerned to resolve these puzzles. I am more concerned to see what kind of notion of reason is underlying Aristotle's rationalism. But I do hope that in getting clearer about the notion of reason involved, we will also be in a better position to deal with the puzzles raised by Aristotle's rationalism.

There is some reason to suppose that Aristotle was familiar with a version of empiricism, in particular in Greek medicine, according to which knowledge or expertise is just a matter of experience, that what we know we know from experience, that, as our experience grows by careful observation, our knowledge grows, and that we should just rely on experience and not treat assumptions as known if, in fact, they are arrived at by mere speculation. Presumably under the influence of this view in medicine a similar view arose in rhetoric. On this view rhetorical knowledge or expertise, too, is a matter of experience. Aristotle certainly is familiar with this view. For he refers to it in the *Metaphysics* A1. 981^{a}4–5. But, though he refers to it approvingly in so far as it rightly emphasizes the role of experience in knowledge, it also is clear from this very chapter that Aristotle himself does not think that knowledge is just a matter of experience. In fact, he here tries to argue that in order to have knowledge, properly speaking, we have to go beyond mere experience and to rely on rational insight into the relevant principles. So this chapter seems to provide us with at least some of Aristotle's reasons for rejecting some version or other of empiricism and adopting a rationalist position. And since in many ways its closest parallel in the Aristotelian corpus is the last chapter of the *Poste-*

rior Analytics, B19, in which Aristotle explains how we come to know first principles on the basis of experience, I would like to focus on these two chapters. A clearer understanding of them should allow us to understand better the crucial role Aristotle reserves for observation and experience in his version of rationalism. But the passage in the *Posterior Analytics* also seems to be of particular interest in that it clearly and explicitly draws on a certain conception of reason.

In *Metaph.* A1 Aristotle points out that experience, at least in the case of human beings, is so rich and so powerful that it almost seems to amount to the same as true knowledge and art (and hence might be easily mistaken for them). But, in fact, it is not the same; experience just is what, in the case of human beings, gives rise to true knowledge (981ᵃ1–3). And so Aristotle goes on to explain how views or beliefs we have on the basis of mere experience fall short of being a matter of true knowledge. I say 'true knowledge' because even in this chapter Aristotle is willing to speak of 'knowledge' (*eidenai*) in the case of merely experiential knowledge (981ᵃ29). So it is true knowledge, knowledge properly speaking, which requires more than mere experience. And this, according to Aristotle's explanation in this chapter, in at least two regards: (1) real knowledge, unlike experiential knowledge, has to be truly universal (981ᵃ5–12); (2) experiential knowledge is knowledge of the mere fact; true knowledge involves an understanding of what is known; it involves knowledge of the reason why something is the case and not just the knowledge that something is the case (981ᵃ24–30).

The two points are clearly connected in a way we will consider when we turn to the first point. But, to begin with, I want to consider briefly the second point: to know, properly speaking, is to have insight, is to understand, to know why, rather than to merely know that. It is easy to see why Aristotle should think that claims to knowledge have to be backed up by an appropriate reason for thinking that something is the case. If we claim to know something, we claim to be in some special, privileged position to say what we are saying. But Aristotle requires more than an ability to justify one's claim appropriately. He also requires that the reason offered for thinking that something is the case be the very reason (or cause, as he often puts it) why something is the case. And obviously he does so because he, like Plato, thinks that knowledge, properly

speaking, involves understanding. To know that something is the case involves knowing why it is the case, knowing what explains that it is the case. What is more, he has a particularly stringent and demanding view of understanding and explanation. Most explanations we ordinarily give, including our scientific explanations, would not satisfy Aristotle's demands. He requires that there be a necessary connection between the explanation and what is to be explained, such that, given the explanation, what is to be explained cannot but be the case. The explanation may not be correct, but if it is correct, it does not leave room for any unclarity, for any further questions. And given these stringent demands, it turns out that nothing that could be said to be known by experience could possibly constitute the explanation of something. And it certainly could not be a matter of experience that some particular fact which explains something stands in the appropriate relation to what gets explained by it such that, given the explanation, it could not but be the case. So it is a certain notion of understanding and, correspondingly, explanation which makes Aristotle think that knowledge, properly speaking, could not be a matter of mere experience.

But the first reason Aristotle offers for saying that mere experience, however rich it may be, does not in itself constitute knowledge, properly speaking, is that mere experience does not provide us with the truly universal assumptions which on his view characterize real knowledge (981^{a}5 ff.). What Aristotle has in mind becomes clearer if we take into account his examples, which, interestingly enough, are drawn from medicine.

We have the experience, Aristotle asks us to imagine, that Callias, when he suffered from a certain kind of fever, benefited from this kind of treatment. We have the experience that the same happened with Socrates and with many others. This, Aristotle says (981^{a}7–9), is a matter of experience. It may help to expand somewhat beyond what Aristotle explicitly says what it is that is a matter of experience. Without going beyond what Aristotle thinks, we surely may add that, given this experience, we can be said to know by experience quite generally that some people benefit from this kind of treatment when they suffer from this kind of fever. Perhaps we even have rich enough an experience to be able to say something about which people benefit from this kind of treatment when they suffer from this kind of fever. (For, given his remarks in

981ᵃ11–12, Aristotle himself seems to envisage a case in which not all patients affected by this condition would respond favourably to this treatment.) Perhaps it turns out, as a matter of experience, that it is those people who have a certain complexion who respond positively. This allows us to form the empirical generalization that those patients afflicted by this kind of fever who have this complexion benefit from this kind of treatment. All this, Aristotle thinks, does not suffice to give us true knowledge because it does not give us a genuinely universal truth. To have true knowledge we would have to grasp the salient feature which distinguishes all those who benefit from this treatment when they suffer from this disease from those who do not benefit. Those who benefit might, for example, be of a bilious or of a phlegmatic condition (cf. 981ᵃ11–12). It is only if we grasp this feature that we can form more than a mere empirical generalization, namely the truly universal judgement that all patients of this constitution who suffer from this fever will benefit from this treatment. And it is only then that we have the beginnings of an account of why these patients benefit from this treatment. For there is a necessary and hence truly universal connection between having this constitution, suffering from this fever, and benefiting from this treatment, which, once spelled out, explains the success of the treatment.

Before we pursue this further, it is worth while to look briefly at a passage in the *Ethics* (*EN* 6. 7. 1141ᵇ16 ff.) which seems to presuppose a similar view. The example Aristotle is discussing there, again, is a medical example. We might know by experience that meat of fowl is good for one and hence particularly good for patients in their weakened condition. This is an empirical generalization. What mere experience does not provide us with is a grasp of the salient universal feature. It is an insight, and not a matter of experience, to realize that the salient feature is the lightness of the meat. So it is, in fact, all light meat which is good for one, and fowl just happens to be light meat. Its being fowl in a way is irrelevant to its being good for one, just as in the earlier example the patient's having a certain complexion in a way was irrelevant to his benefiting from the given treatment.

So true knowledge goes beyond mere experience in that it involves the grasp of a salient universal feature. Grasping that feature, and grasping how it is necessarily related to other features in the domain, allows us not only to form a truly universal judgement

as to what is the case, but also to understand and to explain why it has to be the case. Hence, whatever enables us to have the experience we have does not yet enable us to have true knowledge. Hence perception and memory, though on Aristotle's view in *Metaph.* A1 they suffice to account for our experience, do not suffice to account for knowledge, properly speaking. To account for this, some other ability is needed in addition to perception and memory. And this Aristotle takes to be reason.

Now, before we look more closely at how reason is supposed to enable us to have knowledge properly speaking by allowing us to grasp the salient universal, it is worth noting what, at least according to *Metaph.* A1, it is not needed for. To go by the account in *Metaph.* A1, one gets amazingly far without reason. In fact, the way Aristotle talks in this chapter, for all practical purposes one does quite well without reason altogether, just relying on experience. Aristotle at 980^{a}27 ff. explains how animals in virtue of their ability to perceive can also be sensible (*phronima*) if they just have memory; not truly rational, of course, but at least sensible. And he also explains how, given certain further conditions, they can even learn. Aristotle elsewhere has a lot to say about the considerable amount of *phronesis* animals are capable of in virtue merely of their ability to perceive and to remember and to thus gain a certain amount of experience. This experience, though, which animals may acquire is modest by comparison to the rich experience human beings accumulate (980^{b}26–7). Human experience is so rich and powerful that one might mistake it for knowledge and art (*techne*, 981^{a}1–2). In fact, for practical purposes experience does not seem to differ from true knowledge (981^{a}12 ff.). If anything, the person with experience in practice has an advantage over the person who somehow knows, but has little or no experience (981^{a}13 ff.).

If one reads all this, one gets the impression that reason, though it is that which distinguishes human beings from animals, only comes in to serve a highly specific and rather elevated function, namely to account for our ability to grasp the appropriate general features and the necessary connections between them. And this seems to be an ability which, according to Aristotle's account here, we can dispense with in ordinary, everyday life without detriment to our efficiency. All we would lack would be a certain kind of understanding. This, by contrast, suggests that Aristotle, at least

here, does not think that our everyday dealings, in so far as, in them, we just go by our experience, do involve the use of reason. Hence, at least here, he does not seem to think that our ordinary everyday thought or reasoning does involve reason, properly speaking. For he can hardly want to suggest that those who in practice do quite well just relying on their experience proceed altogether without what we would call 'thinking' and 'reasoning'. So it seems that Aristotle does not associate reason primarily with ordinary, everyday thought and reasoning, as we do, but with a much more specific function of reason. Perhaps he assumes that this highly specific function of reason also colours, or even trans- forms, our ordinary everyday thought and reasoning, but he clearly does not introduce reason to account for our ordinary thinking and reasoning.

Obviously this is a crucial point. Perhaps it can be clarified in the following way. Clearly Aristotle does not want to deny that human beings, and perhaps even animals, learn, on the basis of their ex- perience, to discriminate between things. Thus he envisages that people, just on the basis of their experience, might be able to distinguish between people who suffer from a certain affliction and those who do not, between people who benefit from a certain treatment and those who do not. He clearly also envisages that people with the appropriate kind of experience, just on the basis of this experience, will take the view, when they encounter somebody with the affliction they are familiar with, that he should receive the familiar treatment, since this has proved beneficial in previous cases.

Now I submit that it is Aristotle's view that all this does not yet by itself amount to thinking and to reasoning, properly speaking. For it to amount to anything we could really call 'thinking' and 'reasoning' it would have to involve a minimal mastery of appropri- ate concepts of the relevant features involved. The point is not merely that thinking involves concepts. It is the much stronger point that it is the application of concepts which are based on a sufficient grasp of the corresponding features and of the relations between them which constitutes thinking. But obviously the mere ability to discriminate things on the basis of perception and experi- ence does not as such presuppose the use of appropriate concepts. Even when the use of something like concepts is involved, these concepts do not necessarily reflect the relevant feature or features

of the things discriminated by means of the concept. On Aristotle's view it does not seem to suffice for thinking that we have a notion of, say, a human being which allows us, by and large, to distinguish successfully between human beings and other things; the notion rather has to be based on a sufficient grasp of what it is to be a human being, of the crucial feature or features of human beings, and of how these features are related to each other and to a whole network of features.

There are all sorts of obvious difficulties with this view, but there is one detail which one should not overlook and which is particularly relevant here. What makes a notion an appropriate notion, a notion of the crucial feature of a class of objects, clearly is not that, carefully comparing these objects, we find that it is a feature they, and only they, share. To grasp what it is to be a human being, on Aristotle's view, is more than just to grasp what human beings have in common; it is to grasp something which figures prominently in the explanation of human beings and their behaviour. More generally, what makes a notion an adequate notion is that it is appropriately related to other concepts, and thus imports a whole system of related concepts in terms of which one can understand and explain the objects falling under the given concept, because the corresponding features stand in the appropriate relations to each other. Thus, to go back to the first example, we may well be able to discriminate, merely on the basis of experience, between those people who have a certain complexion and those who do not; and we may also, on the basis merely of experience, have the impression, or the view, that people with this complexion benefit from this treatment if they suffer from this fever. But the salient feature is not that of having a certain complexion. This is not the feature which is appropriately related to the other features involved so that by having a proper understanding of them we would be able to understand and to explain, in fact to reason, that some people who suffer from this affliction benefit from this treatment. What allows us to have a thought, properly speaking, rather than a mere impression or a view or a belief (a *doxa*), and to reason, rather than to proceed by the association of impressions or ideas, is the recognition that the appropriate concept is, say, the concept of something of a bilious constitution, because it is this feature which is appropriately related to the other features involved, e.g. the feature of suffering from a certain fever and the feature of responding posi-

tively to this kind of treatment, in such a way that we can argue that, and thereby show why, some people who suffer from this fever benefit from this treatment.

That Aristotle, in introducing reason, primarily means to introduce a highly specific ability, namely the ability to grasp certain features and the necessary relations between them, rather than our ordinary, everyday ability to think and to argue, is borne out, I think, by Aristotle's claim that his predecessors tended to overlook reason or the intellect (*nous*), or at least to fail to distinguish it as a separate ability. Clearly, Aristotle does not think that his predecessors, apart from Plato, overlooked our ordinary ability to think and to reason. What they overlooked, in Aristotle's view, is what he finds distinctive about reason, the ability to grasp universals, and this is why they failed to distinguish it as a separate ability. In *de Anima* 3. 3. 427ᵃ19 ff., Aristotle tells us 'It is thought that intellectually grasping things (*noein*) and being sensible (*phronein*), too, amount to some kind of perception; and those of old, at least, claim being sensible and perceiving to be the same.' He goes on to refer to Empedocles and to Homer (427ᵃ23–6), and then (427ᵇ6–8) points out that being sensible and perceiving are not the same, since perception is to be found in all animals, whereas only some animals have sense. Nor, he argues, is intellectually grasping the same as perceiving.

In this passage, then, Aristotle seems to accuse at least the older philosophers of the following: they assimilate intellectually grasping or having insight (*noein*) to being sensible (*phronein*), or at least they fail to distinguish the two, and they then reduce being sensible, and with it having insight, to some form of perception. Why Aristotle finds this objectionable we can understand in terms of the passage in *Metaph.* A 1 which we have been considering. It is true that some animals, having experience, have sense or *phronesis*, but they do not have this just in virtue of perception. Otherwise all animals would have it. It also presupposes a certain kind of memory. But, in addition, though it is true that mere experience can explain how one can have sense of a sort, how one can behave in a way which looks sensible or even reasonable, we should not confuse having sense (*phronesis*) with having insight (*nous*), i.e. that ability in virtue of which we have not only experience, but true knowledge. In any case, it is clear that Aristotle is accusing his predecessors of failing to acknowledge that which he takes to be

distinctive of human cognition, namely *nous*, the ability to grasp universal features and to have insight by seeing the relations between them. Even when his predecessors do talk of 'nous', at best, he seems to think, they only talk of the kind of *phronesis* animals have, too.

In fact, in a closely related passage, namely in *de An.* 1. 2. 404^{b}5, Aristotle uses the phrase '*nous* in the sense of "*phronesis*"'. Aristotle here, 404^{a}26–^{b}6 (and again somewhat later in the same chapter, 405^{a}9 ff.), speaks of philosophers who identify the intellect as a kind of soul, that is to say as something which can move and perceive and which, hence, can account for the ability of animals to move and to perceive. Aristotle refers to Democritus (cf. also *Resp.* 472^{a}7–8) and, in this following Democritus it seems, to Homer. He explains that Democritus identifies the true as what appears to be the case, i.e. as what we perceive to be the case (404^{a}27–9); and he takes that to mean that Democritus does not acknowledge the intellect as a distinctive cognitive ability (404^{a}30–1). In treating intellectually grasping or insight as a kind of perception, Democritus identifies the intellect with the soul, i.e. with that in virtue of which we are able to perceive and to move. Aristotle acknowledges that Anaxagoras' case is somewhat different (404^{a}27, ^{b}1 ff.). On the one hand, there is Anaxagoras' famous *nous*, which is supposed to account for the rational order of the world, an obvious work of real intelligence. But then Anaxagoras also seems to identify the intellect with the soul, as Aristotle puts it in 404^{b}3 (cf. 405^{a}9 ff.), when he attributes it to all animals. In *Metaph.* Γ 5. 1009^{b}10 ff., Aristotle seems to take a similar position. Here he accuses Democritus, Empedocles, even Parmenides, and—with some hesitation—Anaxagoras and Homer, of assuming that perception constitutes having sense (*phronesis*) and of failing to recognize the distinctive nature of *nous*.

This, it seems to me, suggests that what Aristotle wants to attribute to human beings as what is distinctive of them, when he attributes *nous* or reason to them, is not, or at least not primarily, an ordinary ability to think and to figure things out, but a highly specific ability which is needed to have true knowledge and which most of his predecessors, Aristotle thinks, failed to acknowledge, namely the ability of the intellect to grasp general features and to see relations between them.

We find out more about this ability when we turn to *APo.* B19,

the text which provides the closest parallel to *Metaph.* Aɪ in the Aristotelian corpus. Like *Metaph.* Aɪ it focuses on the distinctive contribution reason makes, in virtue of which we not only, like other animals, have experience, but can have knowledge. It confirms the view suggested by *Metaph.* Aɪ in many details, but in several regards adds to it.

As in *Metaph.* Aɪ, Aristotle is concerned with the distinctive human ability to grasp universal features and to know universal truths. In Bɪ9 he wants to show how we come to grasp the basic features of the domain of a scientific discipline such that in virtue of having this grasp we directly know the immediate truths about these features which then serve as the axioms for this discipline. Thus we want to grasp, if we do geometry, what is to be a line or a point. But, grasping this, we see how being a line or being a point is immediately related to certain other features. And these insights provide us with the axioms. But Aristotle explains how we come to grasp these basic features by explaining how we come to grasp the universal features in a domain quite generally and in the course of this also come to grasp the most basic or most abstract features.

How, then, do we manage to grasp the relevant universal features? At this point there seems to be a strong temptation to assume that Aristotle appeals to a mysterious quasi-mystical power of the mind to intuit universals. It is this presumption which traditionally has led many philosophers to reject Aristotle's view of knowledge and in particular his rationalism, since they seemed to be based on this fictitious ability of the mind. But if we look at Bɪ9, it turns out that, though Aristotle's account in places may be highly obscure and questionable, it does not seem to rely on the postulation of some mysterious faculty, but on abilities we all commonly rely on, though our theoretical understanding of them may be faint and dim.

Put in a nutshell, just having reason turns out to be in itself a matter of having developed the right notions of the features relevant to a domain, and—ideally—of the features which characterize reality quite generally. And having the right notions, there is nothing mysterious about reason's ability to recognize things for what they really are, to grasp their relevant universal features. Nor is there anything mysterious about our ability to grasp the relations, immediate or mediate, between the features thus conceived.

Hence there is nothing mysterious about our ability, once we have reason thus understood, to see that being meat of fowl and being conducive to health are not appropriately related, except in so far as meat of fowl happens to be light meat, but that being light meat and being healthy are appropriately related, in so far as both are related to being easily digestible. And this allows us to understand, and hence to know, that light meat is good for one, and that, hence, incidentally meat of fowl is good for one. That is to say that having reason, or at least reason in this domain, allows one to grasp the salient universal in the experiential truth that people of a certain complexion, when suffering a certain kind of fever, benefit from a certain kind of treatment. It might take a lot of experience and a lot of reflection and a richly developed reason, a reason with a rich stock of appropriate concepts and a good grasp of the relations between them, to grasp that this is the salient feature. And, of course, there is nothing to guarantee that we might not be mistaken in thinking that we finally have grasped the relevant feature. But there does not seem to be anything mysterious about this, albeit fallible, ability to have such insights.

So the crucial and controversial assumption here is not that the mind can grasp universal features, the problematic assumption rather is one involved in the conception of what it is to have reason, of what it is to be rational. It is assumed that to be rational in itself already is to have the right notions of things, of their crucial features, and thereby to be aware of the necessary relations between these features and, thereby, the relations between the things characterized by these features. But that is to say that just to be rational in itself already involves substantive knowledge about the world. And once we grant this, we may as well grant that on the basis of this knowledge we can grasp salient universal features. Knowing enough about human physiology, it should not be difficult to see what it is about meat of fowl which makes it a particularly appropriate diet for patients. What is difficult is to know enough about human physiology, especially given Aristotle's high demands on what it is to really know about anything.

Now what is problematic about this notion of reason, or of being rational, is not that it presupposes that we have certain notions of things or their features. For it seems that it is distinctive of rationality that it involves the use of concepts. Nor does it seem problematic that it is assumed that in virtue of reason we grasp relations

between concepts or the features thus conceived. For it seems that to be able to use concepts properly at all we have to be aware to some extent of how this use in each case is constrained, or even defined, by the relation of the particular concept to other concepts.

In the Aristotelian tradition one has tended to think that to have the right kind of concept of something is a matter of isolating and abstracting the feature which all things of the relevant kind have in common. But this does not give us an adequate account of what it is, in fact, to have the right kind of concept. Nor does it do justice to Aristotle's conception as it emerges from *Metaph.* A1 and *APo.* B19. This becomes particularly clear if we now look at the latter chapter in some more detail.

In *APo.* B19 Aristotle raises the question 'In virtue of which disposition do we know first principles?' Note that this is not the same as the question 'In virtue of which disposition do we come to know first principles?' Aristotle rather is concerned with the disposition in virtue of which we actually already know principles. The chapter raises several questions concerning this disposition. And one question which it tries to answer, and which, indeed, it raises first, is the question whether we are born with this disposition or only acquire it with time. Aristotle's answer is that it is a disposition which we only acquire with time, and he has something to say about the way we do acquire it.

Now, one crucial point for my purposes is this: I have talked a lot about 'reason', but in the passages I have discussed so far, in particular in *Metaph.* A1, the word 'reason' itself does not actually occur. Now, in B19, the crucial word, 'logos', finally does occur, namely in 100^{a}2. It is used to refer to precisely the disposition of the mind or soul in virtue of which, or perhaps rather in which, we know first principles, and he talks of this disposition as something we come to acquire. I infer from this, though the conclusion seems striking and surprising (given our intuitions about, and our understanding of, reason), that Aristotle assumes that we are not born with reason, but only acquire it, and that, in Aristotle's view, to have reason, to be fully rational or reasonable, is to know first principles.

Of course, something can be said to alleviate the intuitive difficulties one has with the claim that for Aristotle reason is not something with which we are born, but which we only acquire. For

instance, it can be said that Aristotle must assume that we are born with the capacity for reason, with potential reason, and that in this sense, even on Aristotle's view in *APo.* B19, we are born with reason. But, this having been said, one needs to insist that Aristotle in B19 is quite specific as to what kind of abilities it takes to acquire reason. On his view (cf. 99^{b}32 ff.) it primarily takes the ability to perceptually discriminate, but then also the ability to remember what we have perceived and to process what we remember in a certain way. His view quite definitely is not that it takes the ability to perceive, the ability to remember, and, in addition, potential reason. The view rather is that reason develops out of our ability to discriminate perceptually and to remember. Given the way human beings perceive, given their powerful memory, which allows them to develop a powerful experience, they come to form the right concepts and thus to acquire reason. Hence it seems that, if we want to talk about potential reason at all, it is not an ability which we have innately in addition to the specifically human forms of the abilities to perceive and to remember; to be potentially rational seems to consist in nothing else but the particular powerful way in which human beings can perceive and remember, which, in the course of an ordinary development, gives rise to concepts and ultimately to the right kind of concepts. It gives rise, not just to concepts, but to the right kind of concepts at least in part because perception already itself is a discriminative ability (99^{b}35). And it is this discriminative ability of perception which is innate and constitutes the potential for reason.

As far as the claim is concerned that reason is a disposition in which we actually know first principles, this, at first sight, does seem excessively strong. But what Aristotle may have in mind is this. As reason is something which we acquire, it is something which we acquire more or less completely. Thus we may want to distinguish between a state in which we have acquired reason sufficiently to be qualifiedly called 'rational', and a state in which we can be called 'rational' unqualifiedly. We might also distinguish between 'reason' and 'perfected reason', as the Stoics did later. But this should not obscure the fact that Aristotle here commits himself to the claim that to be fully and unqualifiedly rational is to know the first principles of things.

Aristotle in B19 not only claims that we only come to have reason, only come to be, at least ideally, thus disposed as to know

first principles, he also explains how this disposition arises out of perception and experience. There are in particular two aspects of this account which are of relevance for us. Aristotle assumes that the disposition in question is acquired by acquiring all the relevant concepts which are supposed to arise out of perception and experience. However obscure, and in their interpretation controversial, the details of his account of how we acquire these concepts may be, it is abundantly clear from 100^a12-^b3 that Aristotle does not envisage that the concepts are acquired one by one in isolation. However we interpret the battle metaphor, it seems clear that he assumes that we begin with a tentative and unstable grasp of the different features, which constantly threatens to collapse until we get a firm grasp on some features such that, given the way the features are interrelated, our grasp of the whole group solidifies and stabilizes. This is also why Aristotle can assume that having the right concepts is to know the first principles. We do not come to acquire these concepts piecemeal, but by a process of mutual adjustment with other related concepts, as a result of which certain elementary relations between features in the end seem evident. Again it is clear that Aristotle, to explain how we first come to grasp universals, does not appeal to some mysterious power of the mind to see directly or intuit features or forms, but to some complex process in the course of which our notions again and again are readjusted until they finally fit into a coherent and appropriately structured system of notions and correspondingly beliefs in terms of which we finally can make sense of what we know from experience.

The other aspect of the account which is relevant here is that the acquisition of reason is represented as basically a natural process. It is our nature to acquire reason. It is not that some of us decide to acquire methodically, according to certain rules, the right concepts and thus reason. The process by which perception gives rise to memory and memory in turn to experience, and by which this in turn leads to incipient concepts, is something which goes on in us without our doing anything about it. It seems, indeed, that Aristotle thinks that there is a very powerful mechanism which guarantees that, by and large, we end up with adequate, though perhaps primitive and as yet inarticulate, notions of things. For otherwise he could not claim, at the beginning of *de Interpretatione*, that, though different languages use different words for the same

things, the affections in the soul corresponding to these words and things are the same with all people. Hence, to the extent that this is a natural process based on perception, the relation between our perceptions and our knowledge of first principles, or whatever knowledge we have by reason, is a natural, a causal, rather than an epistemic relation. Our knowledge of first principles is not epistemically, but only causally, based on perception. And this is how Aristotle can be an extreme rationalist and still constantly insist on the fundamental importance of perception for knowledge.

Now, obviously, the matter is more complicated. To say that it is somehow a natural process by means of which we arrive at first principles is to exploit Aristotle's generous conception of what is natural and to focus on just one aspect of it. This becomes particularly clear if we keep in mind that on Aristotle's view it also is the case that by nature we are meant to be virtuous and are thus constructed as to naturally be virtuous. Nevertheless, Aristotle also assumes that it takes a great deal of effort on our part actually to become virtuous. And, similarly, he clearly also assumes that it takes a great deal of effort on our part to come to know the first principles in general (and thus to become wise), or even just the first principles in some domain. What is needed for this is a great deal of often highly specialized observation and of often highly technical reflection. But this should not obscure the fact that the insight, if it is an insight, does not derive its epistemic status from these observations and reflections which lead up to it. What makes it an insight is not the support it gets from observations or considerations, but that one finally sees in a way which fits how the features in question are related to each other and to other relevant features.

And this, I want to suggest tentatively, is where reasoning, strictly speaking, for Aristotle begins. By grasping the features of things and by thus grasping certain relations between these features as well, we also come to be in the position to deduce that certain further relations hold between features, and thus to extend our knowledge and understanding. Aristotle's syllogistic clearly is meant to show when and how we can infer from the fact that each of two features is related in a certain way to a third feature, that the two features themselves also are related to each other in a certain way. And such deductions are something quite different from the kind of thinking and reasoning we engage in in everyday life.

Now, it is obvious, and it was obvious to Aristotle, that one can successfully engage in syllogistic reasoning without knowing first principles or even being anywhere near grasping first principles. In fact, one can engage in such reasoning without having any grasp of the real features of the world. But this is not the point. The point is that Aristotle seems to have a conception of reasoning which fits his highly specific view of what reason is, rather than what we in everyday life consider as thinking or reasoning, which on Aristotle's view in *Metaph.* A1 might be accounted for just in terms of a powerful notion of memory.

To conclude, Aristotle is a rationalist. But to understand this properly one has to see that he has a highly specific notion of reason. And reason for him is a disposition which we only acquire over time. Its acquisition is made possible primarily by perception and experience. Thus built into Aristotle's version of rationalism is a strong regard for empirical observation, a regard which is so strong as to tempt us to think of Aristotle as an empiricist. But for Aristotle knowledge, properly speaking, is only based causally and not epistemically on perception and experience. In this, as far as I can see, he does not differ significantly from either Plato or the Stoics, though in other aspects of their conception of reason there are significant differences, e.g. in that Plato does assume that reason is innate and not acquired. And this is why Aristotle in *APo.* B19 goes to such lengths to explain that reason is something which we are not born with, but only acquire in the course of a natural process, a view which was taken up and elaborated on by the Stoics.

6

Grammar on Aristotle's Terms

JONATHAN BARNES

I

According to Frege, 'the fundamental logical relation is that of an object falling under a concept'.[1] The fundamental relation finds its canonical expression in singular sentences of the form '$F(a)$'. Such sentences consist of two parts: there is a designating expression, which Frege calls an *Eigenname*;[2] and there is a descriptive expression, which Frege calls a *Begriffswort*. Grammatically speaking, the simplest sentences of this sort contain two words and show the structure '$E + B$'. More generally, and a little more rigorously: in Fregean grammar, (1F) primary sentences[3] have two significant parts; (2F) these two parts belong to different and mutually exclusive grammatical categories: no *Eigenname* may hold the place of a *Begriffswort* and no *Begriffswort* may hold the place of an *Eigenname*; and (3F) in virtue of their heterogeneity, the two elements in a primary sentence bind together into a syntactic unity—

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[1] 'Ausführungen über Sinn und Bedeutung', in Frege (1983: 128 = 1979: 118). (In citing Frege I give page-references to the standard German editions, followed by page-references to the standard English translations. For the most part, English translations are my own.)

[2] For Frege's explanation of his use of the word 'Eigenname', see e.g. 'Über Schönflies: *Die logischen Paradoxien der Mengenlehre*', in Frege (1983: 192 = 1979: 178). The English 'proper name' is a misleading translation ('The man who broke the bank at Monte Carlo' is an *Eigenname*, but it is not a proper name); 'singular term' is better—but an *Eigenname* may designate a *plurality* of items ('Graf and Becker won the mixed doubles').

[3] I take the phrase 'primary sentence' from Plato: see below, p. 180. A *simple* sentence is a sentence none of whose subcomponents is itself a sentence; a *primary* sentence is, as it were, the simplest sort of simple sentence. The notion of a primary sentence is not exact; but exactitude is unnecessary in this context.

the *Eigenname* "completes" or "saturates" the *Begriffswort*, which is itself essentially incomplete or unsaturated.[4]

Thus the sentence

Theaetetus flies

consists of two parts, the name 'Theaetetus' and the concept word '... flies'; the parts belong to different grammatical categories; and in the sentence they bind together into a unity.

For Frege, primary sentences are essentially heterogeneous: 'objects and concepts are fundamentally different and cannot stand in for one another; and the same goes for the corresponding words or signs'.[5] Frege himself took the heterogeneity to be crucial. Standard modern logic is based on Fregean grammar.[6]

II

Traditional logic, which was the final form of Aristotle's syllogistic, has a grammar of its own; and this grammar—or so the story goes— is foreshadowed in and presupposed by the *Analytics*.

According to the traditionalists, the fundamental logical relation is the relation of predication. This relation finds canonical expression in sentences of the form 'TxT^*', in which two terms, a subject and a predicate, are attached to one another by a copula or δεσμός. In the simplest case, each term is a "name" or ὄνομα, and the

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[4] 'The unsaturatedness of the concept brings it about that the object, in so far as it brings about the saturation, sticks directly to the concept, without needing any special cement. Object and concept are originally dependent on one another, and in subsumption we have their original union' (Über Schönflies', in Frege (1983: 193 = 1979: 178). Just as (in this text) the *object* saturates or completes the *concept*, so the object *word* saturates or completes the concept *word*: e.g. 'Ausführungen', in Frege (1983: 129 = 1979: 119); 'Logik in der Mathematik', in Frege (1983: 246–7, 253 = 1979: 228, 234). These passages, among many others, insist that the unsaturatedness of the concept word constitutes its predicativity.

[5] 'Ausführungen', in Frege (1983: 130 = 1979: 120). Cf. e.g. 'Logik in der Mathematik', in Frege (1983: 258 = 1979: 239): 'Here we must again insist on the fundamental difference between object and function. No function name can stand in a place where an object name (an *Eigenname*) stands; and conversely no *Eigenname* can stand where a function name stands'; 'Über die Grundlagen der Geometrie II', in Frege (1967b: 269 = 1984: 280–1).

[6] 'Frege's definitive elucidation of the logical connexions in elementary predication' is one of three 'significant advances in logic and philosophy' which he made (Patzig 1970: 86).

sentences show the structure '$O + D + O$'. More rigorously: in traditional grammar, (1A) every primary sentence contains two significant parts; (2A) these two parts must belong to the same grammatical category, namely the category of ὀνόματα, so that any subject may stand in predicate position and any predicate may stand in subject position; and (3A) in virtue of their homogeneity, subjects and predicates will not unite by themselves but must be glued or bound together by a third item.[7]

Thus the sentence

Pleasure is good

contains two significant parts, 'pleasure' and 'good'. These two parts belong to the same category, being both ὀνόματα; and they are united by the copula, 'is', which signifies nothing in itself.

Traditional primary sentences are crucially different from Fregean primary sentences. Instead of the heterogeneity which lies at the heart of Frege's logic, we find a homogeneity: subjects and predicates are essentially interchangeable. I say 'essentially' because this homogeneity underlies traditional syllogistic: it is presupposed by the conversion rules and it is presupposed by every categorical syllogism. Thus the rule of E-conversion licenses the inference from 'No As are Bs' to 'No Bs are As', and so presupposes the homogeneity of simple sentences. Were these sentences not homogeneous, the conversion rule would license nonsense. Or again, take the first syllogistic form, Barbara:

Every B is A
Every C is B
Every C is A.

Here the term-marker 'B'[8] appears once in subject and once in predicate position. And in every syllogistic form there is one term-marker which plays such a dual role. The role could not be played but for the homogeneity of subjects and predicates.

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[7] 'Since the predicate in such sentences [sc. sentences such as "Man is just"] is a name (ὄνομα), e.g. "just", and cannot in itself produce a complete sentence when coupled (συνδυασθείς) with the subject, they needed as it were a sort of chain (δεσμός) which would link them to one another and make a complete sentence—and this is what "is" does' (Ammonius, *in Int.* 160. 10–14; cf. e.g. Philoponus, *in APr.* 26. 22–8). Ammonius may be thinking of Plato, *Tim.* 30c.

[8] 'B' is not a term—just as 'Every B is A' is not a sentence, and the form Barbara is not a syllogism.

III

Frege's grammar of *Eigenname* and *Begriffswort* was self-consciously innovative. In the *Begriffsschrift* he wrote that 'when I first sketched a formal language, I allowed myself to be misled by the example of language and to compound judgements out of subject and predicate. But I soon became convinced that this was an obstacle to my particular goal and was leading only to useless complications.' Hence at the beginning of the work he insisted that 'a distinction between subject and predicate *is not found* in my representation of judgements'; and in the preface he expressed his belief that 'the replacement of the concepts *subject* and *predicate* by those of *argument* and *function* will in the end prove justified'.[9] In fact, and despite himself, Frege continued to speak of subjects and predicates;[10] but he never wavered from his conviction that 'it would be best to place a complete ban on the words "subject" and "predicate" in logic';[11] for 'the grammatical categories of subject and predicate cannot be of any importance for logic'.[12] In rejecting the categories of subject and predicate Frege rejected traditional grammar and hence traditional logic.

What exactly is wrong with traditional grammar? Inadequacies have been alleged on three levels.

On the metaphysical level, the thing is a monster. In particular, the theory of the copula insinuates an absurdity. The copula is introduced because the two terms of a categorical sentence must be stuck together by some sort of cement. But the copula is not an adhesive. On the contrary, it must itself be stuck to each of the terms: first we had two items to glue together—and now we have three. So we must find two more connectors—and then we shall have five items to glue . . .

At the semantic level, traditional grammar leads to logical disaster. Fregean logic is superior—infinitely superior—to traditional syllogistic. For any argument which can be analysed within syllogistic can also be analysed within Fregean logic;[13] but there are

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[9] See Frege (1879: 4, 2, vii = 1972: 113, 112, 107).

[10] See e.g. 'Über Sinn und Bedeutung', in Frege (1967b: 150 = 1984: 164).

[11] 'Ausführungen', in Frege (1983: 130 − 1979: 120).

[12] 'Logik', in Frege (1983: 153 = 1979: 141); cf. (1983: 154, 155 = 1979: 142, 143; 'Über Begriff und Gegenstand', in 1983: 117 = 1979: 107).

[13] See e.g. the early remarks in *Begriffsschrift*: Frege (1879: 9–10 = 1972: 119–120); and cf. e.g. (1879: 53 = 1972: 165) for Frege's version of the traditional

many—infinitely many—arguments which can be analysed within Fregean logic and not within traditional syllogistic. A celebrated example is this. From:

All horses are animals

it follows, and follows formally, that:

All heads of horses are heads of animals.

Traditional logic cannot analyse the inference. For every syllogism has two premisses and three terms; but this argument has one premiss and four terms.[14] In Fregean logic the analysis is child's play. And this, ultimately, is a consequence of Fregean grammar.

At the syntactical level, traditional grammar is linguistically wrong-headed.[15] The syntactical structure of the sentence 'Pleasure

Tree A

```
              S
        _____|_____
       /      |      \
      O       D       O
      |       |       |
   Pleasure   is    good
```

Tree B

```
              S
        _____|_____
       /               \
      N                 VP
      |              ____|____
      |             /         \
      |            J          Adj
      |            |           |
   Pleasure        is        good
```
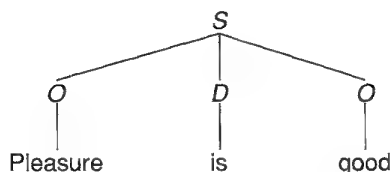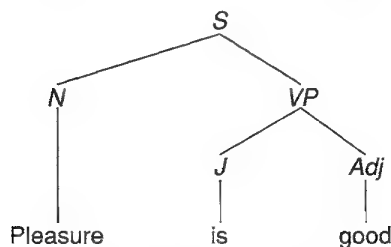
Barbara. Note also Frege's claim that his own formal language is superior to Boole's inasmuch as he has 'departed further from Aristotelian logic' ('Booles rechnende Logik und die Begriffsschrift', in Frege 1983: 16 = 1979: 15).

[14] Hence the argument cannot be exhibited as a single syllogism. Evidently, it cannot be reformulated as a *sequence* of traditional syllogisms.

[15] Frege sometimes writes as though traditional grammar is good grammar but bad logic. Thus: 'We shall completely abjure the expressions "subject" and "predicate" which are so dear to the logicians—the more so in that they not only make similar items more difficult to recognize but also conceal genuine distinctions. Instead of blindly following grammar, the logician should rather see his task as one of freeing us from the shackles of language' ('Logik', in Frege 1983: 155 = 1979: 143). But in truth, if Frege is right, then the traditional logicians were misled not by *language* but by a false grammar imposed upon language.

is good' is not given by Tree A, but rather by Tree B. (In Tree B a *VP* is a verbal phrase, i.e. an item which takes a noun and makes a sentence; a *J* is a "junctor", i.e. an item which takes an adjective and makes a verbal phrase. And the underlying structure indicated in the tree, namely '*N* + *VP*', is roughly the same as Frege's '*E* + *B*'.)

Traditional logicians wrongly take sentences such as 'Pleasure is good' to be the simplest sort of simple sentence; and then they misparse the sentences. The syntactical level is the basic level, and errors at the syntactical level are basic errors. *Hinc illae lacrimae.*

IV

Thus Aristotle started logic down the wrong grammatical road. Or rather, Aristotle diverted logic down the wrong grammatical road. For Fregean grammar may be found in Plato. In the *Sophist*, at 261d–262e, Plato takes a few first steps in logical grammar. Although his remarks purport to be about λόγοι, or sentences in general, in point of fact he only discusses what he calls πρῶτοι λόγοι, "first" or "primary" sentences.[16]

According to Platonic grammar, primary sentences contain two parts, one a name, or ὄνομα, and the other a verb, or ῥῆμα; so that their structure may be represented by the formula '*O* + *R*'. More rigorously: in Platonic grammar, (1P) every primary sentence is a compound of two significant parts; (2P) these parts are of different types:[17] no name is a verb and no verb is a name; and (3P) in virtue of their heterogeneity, the two parts will—in Plato's metaphor— "interweave" into a sentential unity.[18]

Thus in the sentence

Θεαίτητος πέτεται

there are two significant parts. "Θεαίτητος" and "πέτεται"; the two parts belong to different categories, "Θεαίτητος" being an ὄνομα

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[16] He refers to a λόγος which is πρῶτος καὶ σμικρότατος (262c6–7) or πρῶτος καὶ ἐλάχιστος (262c10).

[17] As Plato puts it, there is a διττὸν γένος of words, ὄνομα and ῥῆμα (261e6–262a1).

[18] The succession of words 'lion stag horse' names (ὀνομάζειν) three items, but it is not a λόγος and it says (λέγειν) nothing (262b9–c2); for a succession of names, or of

and "πέτεται" a ῥῆμα; and the two heterogeneous items weave together into a sentential unity.

All this is superficially clear[19]—and it must seem reasonably Fregean, to the extent that Plato's *O* and *R* can be assimilated to Frege's *E* and *B*. Now Plato's grammar was familiar to Aristotle. In the *de Interpretatione* he first expounds something very like Platonic grammar and then widens its range by considering the structure of simple quantified sentences and of modally qualified sentences. The *de Interpretatione* is a short essay and in it Aristotle travels only a short distance; but the direction of his progress we may fairly call Fregean. And yet in the *Analytics* all this is forgotten: Aristotle executes a sharp left turn and marches confidently off in the wrong direction.

Thus—to complete the charge for the prosecution—Aristotle made an egregious error at the start of his *Analytics*: it was a disaster, according to one critic, 'comparable only to the Fall of Adam'.[20] By abandoning Platonic grammar, Aristotle fell into a metaphysical muddle, he imposed suffocating limitations on his logic, and he committed himself to an inept syntactical analysis. However much we may admire the *Analytics* for its rigour and its elegance, we must recognize that it was built on grammatical sand. Logic did not find a secure foundation until 1879.

V

Such is the charge. Can anything be said in Aristotle's defence?[21] I begin with a swipe at Plato.

"Θεαίτητος πέτεται" is one of the examples of a primary sentence which Plato himself offers (263a8). But it is not the only example. The first example of a primary sentence is "ἄνθρωπος μανθάνει", 'Man learns' (262c9). It is plain that this sentence does not contain anything which Frege would have called an *Eigenname*: the ὄνομα

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verbs, is a *mere* succession (συνεχῶς λέγεσθαι etc., 261e1; 262b2–3, 6, c1). The succession of words 'lion roars' not only names two items, an agent and an action, but also says something; for the two words "fit together" (ἁρμόττειν, 262c5, e1; cf. 261d5, e1), "mingle" (κεράννυναι, 262c5), or "interweave" (συμπλέκειν, 262d4; cf. 262c6; d6).

[19] For a full and critical account, see Denyer (1991: 146–82).

[20] Geach (1972: 47).

[21] For an extended defence of traditional logic, see Sommers (1982). Here I am only concerned with a few ancient issues.

"ἄνθρωπος" is a common noun. Nor, in the immediate context of the *Sophist*, is this surprising; for when Plato gave examples to illustrate what he meant by an ὄνομα he chose 'lion', 'stag', and 'horse'—all of them common nouns. Thus Plato's *O* is not at all the same as Frege's *E*; and although this fact does not discredit the three-part characterization of Platonic grammar which I gave earlier, it does mean that Plato missed the particular heterogeneity which is fundamental to Fregean logic.[22] Hence Plato did not offer Aristotle a good Fregean grammar; and if Aristotle erred in the *Analytics*, it is false to claim that the truth lay naked at his erring feet.

These considerations seem to argue for a mitigated sentence.[23] Closer examination leads to the contrary judgement. It is true that neither Plato nor Aristotle distinguishes proper names from common nouns; and in the *de Interpretatione*, as in the *Sophist*, we find proper names and common nouns offered indifferently as examples of ὀνόματα.[24] But in chapter 7 Aristotle announces that 'of objects some are universal and others individual . . . e.g. man is universal, Callias individual' (17^a38-^b1)' and the chapter proceeds to distinguish singular propositions of the Fregean form '$F(a)$' from general propositions. Aristotle plainly supposes that this distinction had some logical importance.

Thus Plato sketched a grammar which has a Fregean tang but which misses the crucial Fregean heterogeneity. In the *de Interpretatione*, Aristotle started out from Platonic grammar and managed to overcome one of its disadvantages, thereby sidling up to the Fregean heterogeneity. And yet, in the *Analytics*, all this was lost.

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[22] Then what is Plato's heterogeneity? In the *Sophist* he gives a semantical criterion for distinguishing ὀνόματα from ῥήματα: the former signify agents (262a6 7), the latter actions (262a3–4). Aristotle, in the *de Interpretatione*, also makes the distinction in semantical terms: ῥήματα are marked off from ὀνόματα in so far as they "co-signify time" (16ᵇ6). The ancient grammarians combine these two ideas: see e.g. Dionysius Thrax 12 (an ὄνομα is something which signifies σῶμα ἢ πρᾶγμα); 13 (a ῥῆμα is a λέξις ἐπιδεκτικὴ χρόνων τε καὶ προσώπων καὶ ἀριθμῶν, ἐνέργειαν ἢ πάθος παριστᾶσα); for variants on these accounts, see e.g. Apollonius Dyscolus, frag. 10 [*Grammatici Graeci* 2. 3. 38–9], frag. 11 [*GG* 2. 3. 70–1]; scholia to Dionysius Thrax, *GG* 1. 3. 215. 26–30. Modern grammar books continue the tradition.

[23] But not if Geach is the judge: he recognizes that in Plato and in the *de Interpretatione* both proper and common nouns count as names; but he thinks that this is the right way to think about naming—Aristotle, on Geach's view, actually had a *better* grammar than Frege's in front of him when he fell. See Geach (1972: 61).

[24] For proper names, see e.g. 16ᵃ21 ('Callippus'), 32 ('Philo').

VI

The plea of mitigation having failed, can we answer the charges directly?

Against the metaphysical objection, at least, a full defence is possible. It is wrong to deny that there is any heterogeneity in traditional grammar. Although the two terms in a traditional primary sentence belong to the same category as one another, they must belong to a different category from the copula. This is obvious enough in itself—and it was plain to the ancient commentators, who insisted that the copula is not a third *term*.[25] If the copula were simply a third item of the same type as the two items it links, then to be sure it would be a useless addition and the metaphysical monster would shamble in. But the whole point of the copula, in traditional grammar, lies in the fact that it is not a term.

Just as the two items in a Fregean primary sentence must belong to different categories, thereby generating the Fregean heterogeneity, so in traditional primary sentences it is essential that 'x' has a different semantic function from 'T' and 'T^*'. Hence a heterogeneity, roughly analogous to the Fregean heterogeneity, is present in traditional grammar. Again, Fregean concept words are essentially incomplete, so that it is apt to represent them by the schema '$F(\ )$', where the parenthetical gap is a visible mark of the incompleteness. In the same way, a traditional copula is essentially incomplete. If 'TxT^*' is the schema for a Peripatetic sentence, then we should represent the copula as '$(\ )\ x\ (\ )$', where the gaps have a similar function. The copula contained in 'Pleasure is good' is best written as '. . . is ———'.

I shall return later to the function of the traditional copula. What I have thus far said should be enough to explode the first charge against Aristotle and the traditionalists.

VII

Even if the copula is metaphysically innocent, it is surely sinful at the syntactical level if it encourages us to taste the fruit of Tree A.

[25] See e.g. Alexander, *in APr.* 15. 4-22; Ammonius, *in APr.* 23. 25–8. Later logicians make the same point when they say that the copula gives the "form" of the judgement. (This notion is found in early Frege; see 'Dialog mit Pünjer über Existenz', in Frege (1983: 71 = 1979: 63–4; cf. 'Über Begriff und Gegenstand', in (1983: 99–100 = 1979: 90–1).)

And yet why think that Aristotle favoured Tree A? Two sets of considerations are relevant here, the first bearing on certain turns of phrase which Aristotle habitually uses in the *Prior Analytics* and the second bearing on some of his scattered remarks about the verb "*εἶναι*".

My schema '*TxT**' is an invention. Traditional logicians often use the formula '*S* is *P*', where '*S*' represents the subject term and '*P*' the predicate term, 'is' being the copula. Aristotle himself frequently uses the following formulae: *τὸ Α ὑπάρχει τῷ Β*, *τὸ Α κατηγορεῖται κατὰ τοῦ Β*, *τὸ Α λέγεται κατὰ τοῦ* B—'*A* holds of *B*', '*A* is predicated of *B*', '*A* is said of *B*'.[26] These formulae are artificial in the sense that no Greek who wanted to say that pleasure was good would normally have expressed himself by way of any of them.[27] Later Greek logicians found the formulae puzzling—or at any rate in need of some explanation.[28] Then why does Aristotle use them?[29]

Modern logicians invite us to say things like 'For any *x*, if *x* is a man, then *x* is mortal'. Such formulae are barbarisms (and potentially misleading into the bargain). Logicians propose them in the name of "regimentation". Ordinary language may mask the logical structure of sentences and hence make it hard to see their logical properties, hard to determine what follows from them and what

[26] There are also trifling variants upon, and elliptical versions of, these formulae; and Aristotle sometimes uses the verbs "*ἕπεσθαι*" and "*ἀκολουθεῖν*".

[27] But the formulae are not barbarisms, nor indeed are they entirely unknown in ordinary Greek. More particularly: (1) there is a common use of "*ὑπάρχειν*" in 4th-century prose which often amounts to an exemplification of Aristotle's formula; e.g. Demosthenes, *Hal.* 31 (*τούτοις . . . ὑπάρχειν σωτηρίαν*); cf. *coron.* 3; *fals.leg.* 84; *Timoc.* 99; Xenophon, *Anab.* 7. 7. 32 (*δουλεία ὑπάρχει αὐτοῖς*); cf. *Mem.* 6. 5. 1; Plato, *Chrm.* 155a3 (*ὑμῖν τὸ καλὸν ὑπάρχει*); *Rep.* 535b6 (*ὁρμύτητα . . . δεῖ αὐτοῖς . . . ὑπάρχειν*); cf. *Cra.* 396b2; *Prm.* 143e1, 160d4. (2) For "*λέγειν κατά*", see e.g. Plato, *Phd.* 81a8; *Cra.* 395c7; *Men.* 76a5; *Rep.* 362a4, 391a3. (3) The verb "*κατηγορεῖν*" + genitive in the sense of 'accuse' is common enough; but in this sense it seems not to be followed by "*κατά*" + genitive, and before Aristotle it does not bear the sense 'predicate of'.

[28] See esp. Alexander, *in APr.* 54. 21–9, on which, see Patzig (1968: 10–12, 15 nn. 22–4). Note that Alexander does not say that the Aristotelian formulae are unnatural or barbarous—he merely distinguishes between the formulae which Aristotle uses in his *διδασκαλία* (i.e. in the main exposition of syllogistic in *APr.* A1–7) and the expressions which are normal in *ἡ συλλογιστικὴ χρῆσις*. See also Apuleius, *Int.* 192. 30–193. 5 Thomas (the text, which is preceded by a lacuna, is corrupt and difficult to understand; but it is plain that Apuleius regards the "Peripatetic" style of expressing syllogisms as odd).

[29] See esp. Patzig (1968: 8–12); Ebert (1977: 132–7).

they follow from. Regimentation is intended to overcome this disadvantage: it rephrases ordinary sentences by way of sentences which, though shaggy in external form, are sleek in internal structure. Just so, we may easily suppose, Aristotle's formulae are regimental in purpose. "τὸ A ὑπάρχει τῷ B" patently shows the categorical structure 'TxT^*': "τὸ A" corresponds to 'T', "τῷ B" to 'T^*', and "ὑπάρχει" to 'x'. The same goes for Aristotle's other two formulae.

Regimental sentences may be taken to reveal the "deep" or "underlying" structure of ordinary sentences. Perhaps, then, Aristotle 'was induced to deviate from ordinary language because he wanted his linguistic expression to reveal with all possible clarity the *logical structure* of the propositions which enter the syllogisms as premisses or conclusion'.[30] Thus natural sentences are to be replaced by sentences which employ one or other of the artificial formulae. These formulae reveal the true structure of categorical sentences. Their syntax is plainly given by trees of the same form as Tree A. Hence, in using his formulae, Aristotle is implicitly subscribing to the view that Tree A manifests the syntax of primary sentences.

This argument is frail and its conclusion hasty. First, it is not *plain* that a sentence couched in one of the formulae must be parsed in a manner analogous to Tree A. It is at least possible to provide a different parsing and to imagine a tree more like Tree B in structure.

Secondly, regimentation need not be construed as an attempt to reveal the underlying structure of ordinary sentences. Regimental sentences may equally well be viewed as "paraphrases"; that is to say, a sentence S regiments S^* provided that S conveys the same semantic content as S^* and conveys it in a logically perspicuous fashion. The syntax of S, on this view, may differ utterly from the syntax of S^*.[31]

[30] Patzig (1968: 11).
[31] In 'Logische Allgemeinheit' Frege remarks that the following three sentences

(1) Alle Menschen sind sterblich
(2) Jeder Mensch ist sterblich
(3) Wenn etwas ein Mensch ist, ist es sterblich

differ in expression and yet convey the same thought. He clearly takes the difference in 'expression' to be—or at least to include—a difference in *syntax*. He prefers, for familiar reasons, to use sentences which share a structure with (3).

Thirdly, did Aristotle intend his formulae to serve as regimental expressions? He does not say so. And he does not normally use the formulae in this way—indeed, he rarely shows any interest in regimentation.[32] The artificial formulae are almost invariably used when he produces sentential schemata.[33] When he presents illustrative syllogisms, he usually produces ordinary Greek sentences. Thus at *APr*. 47ᵇ20–36 illustrative arguments in ordinary Greek are interlaced with schemata in the artificial formulae:[34] there is no hint that the ordinary sentences might better be rewritten in the technical jargon. Again, at *APr*. 48ᵃ40–49ᵃ5, Aristotle considers some of the different ways in which categorical sentences may be formulated in ordinary Greek, and he mentions some difficulties which face a logician who needs to determine what are the subject and what the predicate terms in these sentences.[35] He does not suggest that the sentences should be rewritten in the technical style. Later logicians deal with syllogisms in the same way: when Alexander wants to "reduce" an ordinary argument—say, one of Euclid's arguments[36]—to syllogistic from, he does not make use of "*κατηγορεῖσθαι*" or "*ὑπάρχειν*". He uses more or less normal Greek.

Then what is the function of the Aristotelian formulae? It is striking that at least two of the three[37] are metalinguistic.[38] I suggest

Hence, in Frege's view, (3) is a paraphrase of (1) and (2) which differs from them in syntactical structure. See Frege (1983: 279–80 = 1979: 259–60).

[32] In *APr*. A32–45 he is concerned with "reducing" syllogisms to the figures, i.e. with formalizing ordinary arguments within categorical syllogistic (see 46ᵇ40–47ᵃ2; 51ᵇ3–5). It is here, if anywhere, that we should expect to find regimentations using the artificial formulae. And in fact there are such regimentations (see e.g. 48ᵃ6–18). But they are few and they are casual—there is no general recommendation to regiment.

[33] The only exceptions are found at *APr*. 46ᵇ3–11.

[34] See Patzig (1968: 9–10).

[35] The first example is: *τῶν ἐναντίων ἔστι μία ἐπιστήμη.* Aristotle affirms that the predicate term is 'there being one science' and the subject term 'contraries of one another'. His formulation is not perfect; but what he means is plain: the sentence says of items which are contrary to one another that they are items which belong to the same science as one another. If we wished to regiment, we might say, e.g.:

Being co-scientific holds of every contrariety

—where the artificial terms 'co-scientific' and 'contrariety' are readily defined. But Aristotle makes no attempt at regimentation.

[36] See e.g. *in APr*. 260. 18–261. 28; 268. 7–269. 15.

[37] And we *could* construe "*τὸ* A *ὑπάρχει τῷ* B" in a metalinguistic way, as Michael Frede has reminded me.

[38] I do not mean to say that Aristotle himself was at all clear about this, or about the interpretation I put upon it.

that the formulae are intended in part as semantic descriptions of categorical sentences. Thus when Aristotle says 'If *A* is predicated of every *B*, . . .' he is not offering a schema in accordance with which categorical sentences may be regimented. Rather, the schema indicates the semantic structure which an appropriate categorical sentence must display—'If you have a premiss which predicates *A* of every *B* . . .'.[39] If, in the spirit of Frege, we say that the sentence 'Theaetetus flies' shows that an object falls under a concept, we do not take this to imply that the syntactical structure of the sentence is the same as the structure of 'An object, *a*, falls under a concept, *F*'. On the contrary, it would be an egregious error to make this inference. In the same way, if, in the spirit of Aristotle, we say that the sentence 'Horses sleep' shows that one thing is predicated of another, this should not be taken to imply that the syntactical structure of the sentence is the same as the structure of 'One item, *A*, is predicated of another item, *B*'. To do so would be to make an egregious error.

The sentence 'Horses sleep' is a perfectly good categorical sentence: it predicates one term of another; in it, sleep is said of horses, *A* is predicated of *B*. What are the terms in the sentence? 'Horses' and 'sleep'. What is left? Nothing. Where, then, is the copula? There is no copula; nor need there be.[40]

VIII

What, next, of Aristotle's sundry remarks about the verb "$\varepsilon \hat{\iota} \nu a \iota$"? The *Analytics* provides what ought to be the decisive text—but alas it is a notorious *crux*. Aristotle writes:

I call a term that into which a sentence [$\pi \varrho \acute{o} \tau a \sigma \iota \varsigma$] resolves, i.e. the predicate and that of which it is predicated, $\pi \varrho o \sigma \tau \iota \theta \varepsilon \mu \acute{\varepsilon} \nu o \upsilon$ $\mathring{\eta}$ $\delta \iota a \iota \varrho o \upsilon \mu \acute{\varepsilon} \nu o \upsilon$ $\tau o \hat{\upsilon}$ $\varepsilon \hat{\iota} \nu a \iota$ $\mathring{\eta}$ $\mu \mathring{\eta}$ $\varepsilon \hat{\iota} \nu a \iota$. (*APr.* 24[b]16–18)

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[39] Cf. the following passage from pseudo-Frege: 'If an object, *a*, falls under a concept, *F*, and if *F* is subsumed under *G*, then *a* falls under *G*.'

[40] 'Aristotle neither had nor needed any theory of the copula; a proposition just consisted of a subject and a predicate' (Geach 1972: 55). But I cannot entirely agree with Geach's earlier remark, in the same vein: 'The verb "applies to" [i.e. "$\acute{\upsilon} \pi \acute{a} \varrho \chi \varepsilon \iota$"] in the schema "*A* applies to *B*" was meant only to give a sentence a lecturer can pronounce, not to supply a link between "*A*" and "*B*"' (p. 53).

The last clause, which I have left in Greek, is a standing puzzle: the ancient commentators offered elaborate and unconvincing elucidations;[41] and the modern editors have done no better.[42]

We must turn to the *de Interpretatione*. As I have said, Aristotle first introduces a Platonic grammar for primary sentences. The subsequent development of the argument is perplexing;[43] but we get a new start in chapter 10. Here Aristotle clearly marks off (1) primary sentences, of which "ἔστιν ἄνθρωπος" is his first example; (2) quantified sentences, exemplified by "ἔστι πᾶς ἄνθρωπος"; and then (3) sentences in which '"ἔστι" is co-predicated as a third item'. Aristotle indicates that the "ἔστι" in his examples of (1) and (2) stands in for any ordinary verb (19^b13). Thus in effect (1) consists of primary Platonic sentences with the structure '$O + R$', and (2) consists of quantified sentences with the structure '$Q + O + R$' (where 'Q' is a quantifier). It is with (3) that the copula apparently enters the *de Interpretatione*.

What is the grammar of these new sentences? Aristotle's introductory remarks are not very clear.[44]

When 'is' is co-predicated [προσκατηγορηθῇ] as a third item ... I mean e.g. 'Man is just': I say that the 'is' is compounded[45] as a third item, noun or verb, in the affirmation.   (19^b19–22)

At first sight, this does indeed seem to be the traditional doctrine of the copula: 'Man is just' contains three items; two of them are names; and the third, 'is', is the copula, and a verb. (When Aristotle says 'noun or verb' he must presumably mean 'noun, or rather

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[41] See Alexander, *in Apr.* 15. 4–16. 17; Ammonius, *in APr.* 22. 34 24. 24; Philoponus, *in Apr.* 25. 30–30. 21.

[42] See most recently Smith (1989: 108–9). Ross (1949: 290–1) excised "ἢ διαιρουμένου", comparing *Int.* 21^b27; and the proposal has something to be said for it. If the text is sound, then the least implausible interpretation is this: 'When "is" or "is not" is either present or absent'; i. e. the resolution of a sentence into its two terms may or may not leave a residue, which will be 'is' or 'is not'.

[43] Thus in ch.7 he calls in the quantifiers. But his illustrative sentences are surprising. He invites us to consider "πᾶς ἄνθρωπος λευκός", "οὐδεὶς ἄνθρωπος λευκός", and the like (17^b6). And yet these items should not count as sentences at all, since they lack verbs. (Perhaps "λευκός" is treated as a verb (cf. 16^a15)? No; for verbs essentially signify time, and the word "λευκός" does not do so.)

[44] Boethius, *in Int.*[2] 264. 14, calls the passage *perobscurum* and proceeds to a lengthy commentary.

[45] "συγκεῖσθαι": Boethius translates by '*adiacere*' (*in Int.*[2] 263. 22), which suggests that he read "προσκεῖσθαι".

verb'.[46]) This construal appears to be confirmed by a later passage: in the sentences 'Man is white' and 'Man is not white'

> to be and not to be are additions [προσθέσεις], whereas the underlying objects are white and man. (*Int.* 21ᵇ27–8)

Thus 'is' and 'is not' are superadded, as third items, to the two main elements of the sentences. And all this seems merely to confirm something which Aristotle had said near the beginning of the essay:

> To be and not to be are not signs of the object, not even if you say being by itself. For in itself it is nothing—but it co-signifies a certain composition (σύνθεσιν) which cannot be thought without the items compounded. (*Int.* 16ᵇ22–5)[47]

The semantic function of 'is', in other words, is to indicate that the subject and the predicate are conjoined; and its syntactical role is to take a pair of names into a sentence.

Aristotle, it is true, knows no word for 'copula';[48] but the copula is surely present in the *de Interpretatione*.

And yet the texts I have cited are less than probative. At 16ᵇ22–5, Aristotle ought to be talking of *existential* "εἶναι" and not of the predicative 'is' which we find in 'Pleasure is good'.[49] At 21ᵇ27–8 he is primarily concerned to draw a parallel between predicative "εἶναι" and the modal τρόποι.[50] And in any case, neither of these passages is concerned explicitly with syntactical issues. As for

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[46] See e.g. Ammonius, *in Int.* 166. 2–5.

[47] Cf. e.g. Alexander, *in APr.* 15. 8–9.

[48] Nor do the later Greek sources: the word "δεσμός" first appears in this connection in Ammonius—but for him it is still a live metaphor (see *in Int.* 160. 13, quoted above, p. 177, n. 7); and it is not restricted to the copula. The word "σύνδεσμός" is also used, but always in a vague and generic sense: thus Ammonius, *in APr.* 24. 6–10, counts the modal τρόποι as σύνδεσμοί, and Philoponus, *in APr.* 25. 3–4, holds that *every* item in a sentence apart from the two terms is a σύνδεσμός. So too in earlier texts: see e.g. Plutarch, *Quaest. Plat.* 1001b, in his discussion of Plato's grammatical remarks in the *Sophist*. Again, the Latin word *copula* never means 'copula' in classical texts. It is sometimes used in the general sense of "σύνδεσμός" or 'particle' (e.g. Varro, *Ling. Lat.* 8. 3. 10). Similarly, Boethius uses the word *'colligamentum'* generically for "σύνδεσμός" (e.g. *Syll. Cat.* 796d)—and earlier Apuleius had used various metaphors (pegs, pitch, glue) in the same generic fashion: *Int.* 178. 6–10.

[49] For the interpretation of this passage, see Ammonius, *in Int.* 57. 1–33.

[50] This parallel, which Aristotle more than once draws, might be illuminating were we clear about the grammar of the τρόποι in Aristotle.

19ᵇ19–22, it is worth attending closely to Aristotle's terminology. Here he uses the verb 'co-predicate', "προσκατηγορεῖσθαι": what is its force?

A few lines later, at 19ᵇ24–5 Aristotle remarks that

the ἐστι will be adjoined [προσκείσεται] either to 'just' or to 'not just'.⁵¹

The verb 'adjoin' presumably indicates a syntactical connection.⁵² In other words, Aristotle means to say that in the sentence 'Man is just' the word 'is' should be construed together with the word 'just': the sentence consists of two main parts, 'man' and 'is just', the second of which is composite.

This suggests an interpretation of "προσκατηγορεῖσθαι". The prefix "προσ-" should indicate that "ἐστι" is adjoined to the predicate term; and this seems to be implied by a second occurrence of the verb, at *APr.* 25ᵇ22–4.⁵³ The verb stem -κατηγορεῖσθαι should indicate that ἐστι has a *predicative* function; and this seems to be implied by a third occurrence of the verb, at *Metaph.* 1054ᵃ16–17.⁵⁴ The verb is common in the later commentators, and they adopt the interpretation which I have just sketched. Thus Alexander, who assimilates "προσκατηγορεῖσθαι" to "ἐπικατηγορεῖσθαι",⁵⁵ holds that

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⁵¹ Ammonius, *in Int.* 171. 1–6, and Boethius, *in Int.*² 264. 8–14, signal a variant reading ('man' and 'not man' for 'just' and 'not just'), which was defended by Herminus and by Porphyry (Boethius, *in Int.*² 272. 28–273. 2) but rejected by Alexander (*in Int.* 272. 14–17). Waitz (1844: 345–6) argues persuasively in favour of the variant. If he is right, we should suppose (with Boethius) that Aristotle has tacitly switched his examples from 'Man is just' and 'Man is not just' to 'Socrates is a man' and 'Socrates is not a man'.

⁵² See e.g. *Rhet.* 1407ᵇ12–18, on the celebrated syntactical ambiguity in Heraclitus B1.

⁵³ ' "ἐστι" always and in all cases makes what it is co-predicated with into an affirmation, e.g. "is not good", "is not white" ...'. I take it (1) that "ἐστιν οὐκ ἀγαθόν" represents the verbal phrase '. . . is not good', rather than the sentence 'It is not good'; and (2) that "οἷς ἂν προσκατηγορῆται . . . ποιεῖ" stands for "ταῦτα οἷς . . .".

⁵⁴ ' "One man" is not co-predicated as anything different from "Man" ': for the point see *Metaph.* 1003ᵇ26–9. It is true that the form of the verb "προσκατηγορεῖσθαι" does not oblige us to infer that "ἐστι" is itself predicated. Michael Frede has pointed out to me that when Aristotle says that a verb προσσημαίνει time, we should not think that it *signifies* time—or at least, not that it signifies time in the same sense in which it signifies a πρᾶγμα. (See *Int.* 16ᵇ6, 8, 9, 12, 18; 19ᵇ14; *Poet.* 1457ᵃ17. For other uses of "προσσημαίνειν" see *Int.* 16ᵇ24, 20ᵃ13; *Top.* 140ᵃ19, 155ᵃ33, 169ᵇ11; *Rhet.* 1374ᵃ12: in none of these passages does 'x προσσημαίνει y' mean 'x signifies y in addition to signifying something else'.) But for "προσκατηγορεῖσθαι" the evidence suggests that the verbal stem does carry its full sense.

⁵⁵ See *in APr.* 369. 12–24; 369. 34–370. 6. For "ἐπικατηγορεῖσθαι" see *APr.* 49ᵃ25.

"ἐστί" is to be construed with (συντάττειν) the predicate and that it is predicated of the subject.[56] And Ammonius, who makes the same assimilation, holds that "ἐστί" completes the predicate and is said of the subject.[57]

In sum, the Aristotelian syntax for 'Man is just'—or 'Pleasure is good'—is not the traditional syntax of Tree A but rather the quasi-Fregean syntax expressed by Tree B; and the structure of primary sentences should be given not as $O + D + O$ but rather as $O + [D + O]$, where the brackets are significant.[58] This is the construal implicit in the commentators. It is also implicit in those many texts which loosely equate subjects with names and predicates with verbs.[59] For this equation clearly presupposes that primary categorical sentences have the Platonic syntax '$O + R$'.

[56] e.g. 'To be and not to be are not parts of the sentences, i.e. are not terms; rather, they are external to the terms, being added externally *to the predicate terms* in the analysis of the sentences into terms' (*in APr.* 16. 7–10); cf. e.g. *in APr.* 44. 27–8: '*The predicate term* is that to which "is" (or something equivalent to "is" and containing "is" potentially within itself) is added; *in APr.* 406. 32–4: 'Aristotle takes "is white" and "is not white" <at *APr.* 52ᵃ2–3> not as sentences [i.e. "ἔστι λευκόν" is not here to be construed as the sentence "It is white"] but as *predicates* in the sentences'. Alexander is not consistent, however: at *in APr.* 15. 12, he insists that 'is' is not a *part* of the predicate. This parallels Frege's inconsistency in identifying concept words: below n. 61.

[57] See e.g. *in APr.* 23. 27–8: "ἐστί" 'is an adjunct, and it is adjoined to the predicated term; hence it makes a unity, and Aristotle says "προσκατηγορῆσαι"'; *in Int.* 165. 8–16: 'when we say "Man is just", we primarily predicate just of the subject, man, since this is what we intend to affirm about man. But because just is not in itself sufficient, when interwoven with the subject, to make an affirmation, "ἐστί" is adjoined to them, binding them together (as I said earlier) and being additionally predicated of the subject—thus we say this whole thing about man, that he is just'; *in Int.* 208. 3–8: "ἐστί" 'alone of verbs naturally combines with the predicate, being itself said to be co-predicated, and it makes the predicate—and hence the whole sentence—a unity'. See also Boethius, *in Int.*² 264. 24–265. 28, who remarks that in the sentence 'Socrates in Lycio leget', '*in Lycio*' is 'co-predicated as a third item': i.e. 'in Lycio' is adjoined to 'leget' to form the complex verbal phrase 'in Lycio' 'leget'.

[58] So too Waitz (1844: 345). I might also refer to *APr.* 51ᵇ22–52ᵃ14 where Aristotle argues that there is a difference between not being T and being not-T, between μὴ εἶναι ἀγαθόν (say) and εἶναι μὴ ἀγαθόν. It is quite clear that he regards phrases of the form '… is T' as unities. Indeed, too much so: for at 51ᵇ36–8 he takes 'not being good' and 'being not good' as replacements for *term-markers*. This is a confusion—but an understandable confusion, given the view I uphold in the text.

[59] e.g. Apuleius, *Int.* 178. 1–20; Galen, *Inst. Log.* 2.2; Alexander, *in APr.* 14. 28–9; Ammonius, *in Int.* 177. 5; Philoponus, *in APr.* 11. 19–25. There is an interesting qualification to the view in Martianus Capella: having affirmed, traditionally enough, that 'a sentence has two parts: one, consisting of a name, is called subject, and the other, consisting of a verb, predicate' (4. 393), he notes that 'it may come about that a verb is in subject position and a noun in predicate position' (4. 394). His example is 'qui disputat Cicero est'.

To avoid any misunderstanding, let me observe that the word 'is' does of course form a genuine syntactical component of the sentence 'Pleasure is good'. Indeed, any decent grammar must recognize that such verbal phrases as '... is good', '... is just', and '... is green' have a common constituent; and hence must recognize the element '... is ---'. But this does not imply a recognition of the copula. A copula, syntactically speaking, is a word which takes two names and makes a sentence: it is an item in the syntactical category $S:O,O$.[60] But in the sentence 'Pleasure is good', 'is' does not have this syntax and is not a copula. Rather, 'is' is a verb-forming operator on names: it takes a term and makes a verb (or a verbal phrase); it belongs to the syntactical category $R:O$.

IX

A further Aristotelian remark about "$\varepsilon\tilde{\iota}\nu\alpha\iota$" should be considered. I shall approach it crabwise.

What would Frege say about a Peripatetic primary sentence such as 'Pleasure is good'? The notion of predicativity and the metaphor of unsaturatedness suggest that if we are to find a *Begriffswort* in the sentence, then it must be the "word" '... is good'. And in point of fact Frege more than once considers sentences of this sort and expressly says that the 'is' is part of the concept word.[61] He also remarks that the word 'ist' 'may sometimes be replaced by the mere verbal ending, e.g. "dieses Blatt ist grün", "dieses Blatt grünt"'.[62] Roughly speaking, then, we may ascribe to Frege the equation:

[60] It may be objected that this is a mere stipulation on my part; and certainly many authors use the word 'copula' in such a way that any predicative 'is' is, trivially, a copula. But the crucial question is this: did Aristotle accept the traditional grammar for primary sentences? And one good way of phrasing this question is by asking whether Aristotle accepted the copula. If this formulation takes the word 'copula' in a tougher sense than usual, I do not greatly mind.

[61] See e.g. 'Logik in der Mathematik', in Frege (1983: 256, 258–9 = 1979: 237, 240). Often, it is true, Frege will write as though 'good', by itself, were the concept word. I assume that this is a mere laxity of expression. (Note 'Über Begriff und Gegenstand', in Frege (1983: 106 n. * – 1979: 96 n. *): the draft version says that 'red' is the predicate in 'This rose is red': the published version emends to 'is red'.) But see Wiggins (1984), who argues that Frege would have done better to separate the 'is' from the concept word proper.

[62] 'Über Begriff und Gegenstand', in Frege (1983: 99–100 = 1979: 91).

$$D + O = B,$$

so that any Peripatetic primary sentence with the structure '$O \vdash [D + O]$' will also show the typically Fregean structure '$E + B$'—provided that the first O is also an E.

We might jib at calling '. . . is good' a concept *word* (just as we might jib at calling it a *verb*). Perhaps it should rather be called a concept *expression* (or a verbal *phrase*).[63] Then we might say that the syntactical structure of sentences of the form '$F(a)$' was $E + BA$ (where 'BA' stands for '*Begriffsausdruck*'). $E + B$ is the special case of $E + BA$ which marks off primary sentences.

At *de Interpretatione* 20ᵃ3, Aristotle briefly reverts to simple quantified sentences, remarking that

in cases where 'is' does not fit—e.g. 'to flourish', 'to walk'—in these cases they have the same effect as if 'is' were annexed. E.g. 'Every man flourishes' . . .   (20ᵃ3–6)

If we ignore the quantifiers, we may put the point thus: there are some sentences with the structure '$O + R$' which do not show the special structure '$O + [D + O]$'; and Aristotle claims that, logically speaking, these sentences work in just the same way as sentences with the special structure. A few pages further on he remarks that

it makes no difference whether we say "ἄνθρωπος βαδίζει" or "ἄνθρωπός ἐστι βαδίζων". (*Int.* 21ᵇ9–10)[64]

Thus any sentence with the structure '$O + R$' may be associated with a sentence which has the same semantic content and shows the structure '$O + [D + O]$'.[65]

Just as Frege may use the equation $D + O = B$ in order to accommodate traditional primary sentences, so Aristotle may in-

[63] Frege himself shows little interest in syntactical matters. He writes as though any replacement for '$F(\ )$' in '$F(a)$' will count as a concept word (just as any replacement for 'a' will be an *Eigenname*).

[64] Cf. *Metaph.* 1017ᵃ27–30. The remark refers to *Greek* usage and does not translate into English: the paraphrastic "ἐστι βαδίζων" is not a progressive form of the verb, so that 'is walking' suggests the wrong idea. For the periphrasis, common enough in ordinary Greek, see Kühner-Gerth, II. i. 38–9.

[65] This became standard doctrine: see e.g. Boethius, *in Int.*² 314. 7–315. 18; 317. 8–16 (ascribing the view to Alexander and *ceteri complures*).

voke the equation $R = D + O$ in order to accommodate Fregean primary sentences.

X

The formula '$O + [D + O]$' allows Aristotle to have things both ways. On the one hand, there is a heterogeneity; for 'O' and '$D + O$' belong to different categories. On the other hand, there is a homogeneity; for the formula contains 'O' twice. The homogeneity is required by Aristotle's syllogistic. The heterogeneity is demanded by the decencies of syntax.

So far, so good—or so I hope. But I must briefly address one wholesale objection to Aristotelian grammar. It has been urged that 'it is logically impossible for a term to shift about between subject and predicate position without undergoing a change of sense as well as a change of role. Only a name can be a logical subject; and a name cannot retain the role of a name if it becomes a logical predicate.'[66] If this is right, then my defence of Aristotle is quixotic. For even if the structure $O + [D + O]$ gives Aristotle a *syntactical* homogeneity, it will not underpin the *semantic* homogeneity which his syllogistic requires. If a pair of sentences of the form

(1) No A is B

and

(2) No B is A

are both well-formed, then the words which replace 'A' and 'B' must have different *senses* in (1) and (2). In that case the rule of E-conversion would simply be inapplicable and every syllogism an equivocation.

It is hard to believe that this is correct. Of course, a term in

[66] Geach (1972: 48). Geach then (p. 49) praises Aristotle for his willingness to consider apparently intractable sentences such as 'Knowledge of contraries is the same' (above, n. 35); but he urges that Aristotle's procedure with them 'makes nonsense of ⟨his⟩ interchangeability thesis': interchanging the terms in such sentences leads to something which 'is simply gibberish'.

predicate position plays a different role from a term in subject position: in the one case, its role is to be subject of the sentence and in the other to be predicate. But why should this change of role carry with it a change of *sense* so that genuine interchange of one and the same term is impossible? Why, that is to say, should we hold that the sense of 'horses' and the sense of 'animals' is different in the following two sentences:

Horses are animals

and

Animals are horses?

There are, admittedly, difficulties of various kinds with the interchange of terms in various ordinary sentences. But I cannot see that there is any universal difficulty; and the objection I have just canvassed, which would be annihilating were it sound, is surely a false objection.

However that may be, numerous problems remain. Thus categorical sentences may contain complex terms, while only the simplest sentences show the structure '$O + [D + O]$'. We need to expand the syntax, and to expand it considerably, while at the same time preserving something analogous to the primary structure $O + [D + O]$.[67] More pressingly, we are owed a reasonably clear and coherent description of the category of ὀνόματα. Presumably the category must contain proper names, common nouns (both singular and plural), and adjectives; and it is not clear whether the items in such a category show any syntactical uniformity. The difficulty is apparent in the sentence which I have been using as a paradigm primary sentence: 'Pleasure is good'. For 'pleasure' and 'good' surely belong to different syntactical categories, one being a noun and the other an adjective; and if we try, naïvely, to interchange the terms in the sentence, we get 'Good is pleasure' which seems to be ill-formed.

I shall not try to solve these problems; but one aspect of the second requires comment.

[67] The general lines along which the expansion must go are clear: every categorical sentence must show the structure $OP + [D + OP]$, where OP is a name phrase which may itself have a complex structure.

XI

"Θεαίτητος" and "ἄνθρωπος"—a proper name and a common noun—are alike ὀνόματα, and the category of ὀνόματα has no significant subdivisions. Many scholars would agree that 'in his survey of the possible propositional forms . . . Aristotle fails to mention singular propositions, and he is obviously inclined to exclude them from his systematic discussions of syllogistic form'.[68] It is true that singular propositions appear only rarely in the *Analytics*; but when they do appear, no warning sign is posted, nor are they given any peculiar attention. Later Peripatetic logicians betray no anxieties about them either: their logical gaze rarely falls on proper names; but when it does, they act as Aristotle had acted—and nonchalantly treat proper names as though they were uncontroversial members of the category of ὀνόματα. Now the distinction between an *Eigenname* and a concept word is fundamental to Fregean logic, and we might therefore infer that the crucially disabling feature of Peripatetic grammar was precisely its failure to distinguish between 'Theaetetus' and '. . . flies', between 'pleasure' and '. . . is good' or 'good'.

This, I assume, was Frege's view; for he held that the traditional notions of subject and predicate 'ever and again mislead us into confusing two fundamentally different relations: that of an object falling under a concept and that of one concept being subordinated to another'.[69] If you fail to distinguish between *Eigenname* and *Begriffswort*, then you will treat 'Theaetetus is flying' and 'Pigs are flying' as having the same logical form—and your logic will go to pot. If we attempt to defend Aristotle by stressing his 'obvious inclination' to exclude singular propositions from his syllogistic, we do him small favour: in eliminating the confusion we thereby emasculate the logic.

In short, the fundamental error lies in Aristotle's grammar—and in that part of it which he took over from Plato. The category of ὀνόματα includes items of at least two logically distinct types. If we leave the category alone, Aristotle's syllogistic is fundamentally confused. If we exclude proper names from the category, the syllogistic loses its potency.

Yet this is not an entirely satisfactory diagnosis of Aristotle's

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[68] Patzig (1968: 5).   [69] 'Ausführungen', in Frege (1983: 130 = 1979: 120).

inadequacies. After all, there are unfamiliar modern logics in which the distinction between singular term and general term is systematically ignored; and there are familiar techniques for "eliminating" singular terms from an otherwise Fregean logic. In either way, terms such as 'Theaetetus' and 'pleasure' are taken to be, or to behave as though they were, general terms or common nouns—and logic marches happily onward. In short, no bar is set to logical progress by the failure to distinguish proper names from common nouns.

It is worth noting, in passing, that if singular terms are eliminated or assimilated to general terms, then certain consequences follow for Aristotelian grammar. Thus the primary sentence

Theaetetus is flying

must be regarded as an "indeterminate" or unquantified sentence, like the paradigm

Pleasure is good.

Hence it is properly taken as elliptical, either for

Every Theaetetus is flying

or for

Some Theaetetus is flying.[70]

It follows that all primary sentences are quantified. The simple Platonic structure for primary sentences turns out to be a sham. For *no* sentence has the structure '$O + R$'. At best, we may say that '$O + R$' stands at the heart of primary sentences. The primary sentences themselves are syntactically more complicated.

None of this would have been particularly palatable to Peripatetic logicians; but none of it requires any substantial alterations to the fabric of Aristotelian logic.

XII

In point of fact, Frege's grand logical advance did not depend only, or even primarily, on his grasp of the distinction between

[70] It does not matter which: if there is only one F, then 'Every F is G' is equivalent to 'Some F is G'.

Eigenname and *Begriffswort*. In addition, and rather, it depended on his connected grasp of the notion of multiple quantification, and hence on the concept of a many-placed predicate. The inference about horses' heads, which the traditionalists cannot cope with, involves the two-placed predicate '. . . is a head of −−−'; and its conclusion is a multiply quantified proposition.[71] It is trite to observe that most deductive arguments of any complexity—and in particular, most arguments in the mathematical sciences—depend on multiple quantification. Aristotle's syllogistic was intended as a logic for the sciences; and he expressly claims that 'the mathematical sciences—arithmetic, geometry, optics—and pretty well all the sciences which inquire into the reason why, produce their proofs by way of the first figure' (*APo.* 79ᵃ18–21). Aristotle's claim is false; and it is false because his syllogistic cannot deal with multiply quantified propositions.[72]

In order to grasp the notion of multiple quantification it is necessary to have the idea of a many-placed verb or verbal phrase. Platonic verbs are all one-placed: an R takes a single O to make a sentence. So too, of course, with complex verbal phrases of the structure $D + O$. It is this fact about Aristotelian grammar—a fact which has nothing to do with the copula—which explains the debility of Aristotelian syllogistic.

How might many-placed verbs be superadded to Aristotelian grammar? Well, why not treat the verb in a primary sentence—the 'is' in 'Every horse is an animal'—as itself a two-placed predicate? You might then treat terms as *Eigennamen* of, say, classes; and the schema for a categorical sentence will become 'tXt^*',[73] which is merely a special case of the post-Fregean schema for two-placed relational sentences: '$(a_1)R(a_2)$'. Categorical syllogistic turns out to be the logic of a particular relation or set of relations on classes.[74]

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[71] In more or less standard notation, the inference moves from:

$(\forall x)$ (if horse (x), then animal (x))

to:

$(\forall y)$ (if $(\exists x)$ (horse (x) & head (y,x)),
then $(\exists x)$ (animal (x) & head (x,y)).

[72] On these issues see e.g. Mueller (1974).

[73] I interchange lower- and upper-cases to accord with the post-Fregean conventions.

[74] Cf. here the remarks in Patzig (1968: 52–7). But note Geach (1972: 53): 'By this slide the rake's progress of logic . . . reaches its last and most degraded phase: the

And once we have attended to the two-placed verb '( )*X*( )', we may hit upon the idea that there are also many other two-placed verbs—and some three-placed verbs, and so on.[75]

But this line of thought is muddled—there are familiar objections to treating 'is' in 'Every horse is an animal' as a two-placed predicate. Nor would it have been welcomed by the ancient logicians, who rightly maintained—in effect—that there can only be one copula.[76] In any case, there is another way to introduce relations. For it must surely seem easy and natural to extend the Platonic structure, '*O* + *R*', so that it will embrace two-placed verbs. Once 'Lions growl' is seen to have the structure '*O* + *R*', then surely 'Lions eat antelope' can be seen to have the structure '*O* + *R** + *O*', where '*R**' is a two-placed (or transitive) verb? And after that you may, if you wish, move on to the general notion of an *n*-placed verb, as an item which takes *n* ὀνόματα and makes a sentence.

Two-placed verbs express dyadic relations. Ancient philosophers, from Plato onwards, were well aware of relational items, of τὰ πρός τι. They puzzled over them at length and with ingenuity. But they were all fearfully muddled—as Sextus Empiricus proved with devastating accuracy.[77] Despite all their reflection on relational *items*, Plato and Aristotle never hit upon the notion of a relational *predicate*; and their one-placed verbs never spawned many-placed verbal phrases. The Stoics said a few things which point towards the

two-class theory of categoricals. The subject and predicate terms are now said to denote two classes.'

[75] Cf. Augustus de Morgan's pioneering attempt to generalize categorical syllogistic into a logic of (certain) two-placed relations. He first followed the heterodox line of "quantifying the predicate", so that, for example, 'Every horse is an animal' was construed as 'Every horse is some animal'. He then read the "copula"—the 'is'—in categorical sentences as signifying identity, thus arriving at 'Every horse is identical with some animal'. And finally he reflected that if the "copula" could be interpreted to mean 'is equal to', there was no reason why it should not also be read as 'joins' or 'is tied to' or 'gives' or any of numerous other two-placed relations. (I summarize the story told by Merrill 1990: 60–78.)

[76] See Ammonius, *in Int.* 176. 17–177. 18; 207. 28–208. 8. (Ammonius notes that some scholars had taken a contrary view.) The function of a δεσμός is simply that of taking an ὄνομα into a verbal phrase: if ὁ is any δεσμός, then you know what ὁ means if you know that ὁ takes a name and makes a verb—there is nothing more to know. It follows that there cannot be a plurality of δεσμοί. (Ancient logicians said that 'is' in 'is good' does not "signify" anything. They did not, of course, mean that it was a meaningless noise; rather, they meant that there was nothing to its semantic role beyond the fact that, syntactically, it makes a name into a verb.)

[77] See Barnes (1990*b*).

notion of a two-placed verb; but multiple quantification does not appear in Stoic logic. In Galen's *Introduction to Logic* there is an attempt—unique in ancient philosophy—to analyse a "third sort of syllogism", which Galen called relational syllogisms and which he realized were of the first importance, especially in the mathematical sciences. But Galen himself did not get far; and the later Peripatetics, who developed Aristotle's syllogistic in various minor ways and who were alive to the importance of the arguments which Galen tried to analyse, trudged doggedly backwards: in effect, they attempted to reduce two-place predicates to one-place predicates.[78]

The notion of a many-placed predicate is now so familiar that we may find it hard to sympathize with the ancient muddles. So it is perhaps worth noting that the matter was not wholly plain even to Frege. In the *Begriffsschrift*, it is true, he introduces what he calls 'functions of two and more arguments' without any special explanation.[79] Later, in the *Grundgesetze*, we find a similar nonchalance: 'hitherto I have spoken only of functions of a single argument; but we can easily pass on to *functions of two arguments*'.[80] But other texts appear to exhibit a weaker grasp. Thus in the *Grundlagen* he writes of two-placed relations as follows:

The individual pairs of correlated objects stand to the relation-concept in the same way—as subject, we might say—as the individual object stands to the concept under which it falls. Here the subject is composite.[81]

A sentence such as 'Plato taught Aristotle' is here implicitly construed as containing a *one*-placed predicate, '. . . taught', and a plural subject, 'Plato and Aristotle'. Moreover, Frege never coined a general term to pick out the notion of an *n*-placed predicate. A one-placed predicate he will call a concept word. A two-placed predicate is not a concept word but a relation word. And on those rare occasions when he adverts to three-place predicates he speaks, clumsily, of relations-with-three-fundaments.[82] I do not mean to insinuate that Frege was confused. But he was not altogether pellucid.

However that may be, Aristotelian syllogistic concerned itself

[78] See Barnes (1990*a*).
[79] See Frege (1879: 17–18 = 1972: 128).
[80] Frege (1893: 8 = 1967*a*: 36).
[81] Frege (1986: 78 = 1953: 82).
[82] See 'Logik in der Mathematik', in Frege (1983: 269 = 1979: 249).

exclusively with monadic predicates. Hence it could not begin to investigate multiple quantification. And that is why it never got very far. None the less, the underlying grammar of Aristotle's logic did not in itself block the path to polyadicity. The later Peripatetics were conservative creatures and they lacked logical imagination. Moreover, Aristotle himself had assured them that his syllogistic was adequate for all serious scientific needs. As for Aristotle, his service to logic is nonpareil, and it would be grotesque to chide him for lack of inventiveness. It is true that, in logical grammar, he did not climb above the level which he attained in the *de Interpretatione*. But the *Analytics* does not represent a fatal, or even a new, grammatical excursion. And the story of Aristotle's fall, like the story of the fall of Adam, is a myth.[83]

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[83] An early draft of this paper was read to an Oxford seminar, where David Charles gave it a drubbing. The second version, which I read at the Berlin conference held in honour of Günther Patzig on 25 July 1991, was severely mauled—especially by Michael Frede, Mario Mignucci, and Gisela Striker. I have gained enormously from these friendly thrashings –but I fear that a few more touches of the lash would have made me still fitter.

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7

Perfection and Reduction in Aristotle's *Prior Analytics*

GISELA STRIKER

Ever since Łukasiewicz reinstated Aristotle as the founder of formal logic, there has been a wealth of studies of Aristotle's syllogistic as a formal system. Against Łukasiewicz's claim that syllogistic is a system in which certain theses function as axioms, others as theorems derived from these, it has been argued—convincingly, to my mind—that it would be historically more accurate to represent syllogistic as a system of natural deduction that starts from a set of primitive rules and demonstrates the validity of inferences by showing how their conclusions can be deduced from their premisses.[1] However this particular dispute may be decided, both parties start from the assumption that syllogistic is a *system*, and then argue about what kind of a system it is. Now Aristotle, of course, did not start from the notion of a deductive system of one or another sort. He describes what he does in *APr.* A1–2, 4–7 either as 'perfecting' syllogisms[2] or as 'reducing' one syllogism to another. Since it has seemed perfectly clear, in terms of modern formal logic, what Aristotle is doing in those chapters—namely, either

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[1] See K. Ebbinghaus, *Ein formales Modell der Syllogistik des Aristoteles*, Hypomnemata, 9 (Göttingen, 1964); T. Smiley, 'What is a Syllogism?', *Journal of Philosophical Logic*, 2 (1973), 136–54; J. Corcoran, 'Aristotle's Natural Deduction System', in Corcoran (ed.), *Ancient Logic and its Modern Interpretations* (Dordrecht, 1974), 85–131.

[2] I use 'syllogism' as a convenient transliteration of Aristotle's συλλογισμός, with the understanding that it does *not* mean a two-premiss argument in one of the syllogistic moods, but has the wider Aristotelian meaning 'valid deductive argument'. The currently favoured translation 'deduction', though perhaps less misleading than 'syllogism', does not bring out the point that Aristotle takes syllogisms to be arguments. I shall also sometimes use the non-Aristotelian term 'mood' where Aristotle would have used συλλογισμός for a type of argument.

deducing theorems from axioms, or proving the validity of rules of inference by showing how a certain kind of conclusion can be derived from a certain kind of premisses using only the primitive rules of the system—the terminology of perfecting and reducing has not attracted too much attention. Most commentators seem to suppose that to perfect a syllogism is to reduce it to a perfect syllogism, and that, in turn, consists in showing that the mood so reduced is valid, given the perfect mood, which is already accepted as valid. Hence it is customary to describe the proofs in A4–6 as 'reductions' of the second- and third-figure moods to the perfect moods of the first figure.

It can hardly be disputed that what Aristotle does in these chapters is to prove the validity of second- and third-figure moods. But it seems to me that an investigation of the relations between perfection and reduction might help us to see more clearly how Aristotle arrived at the system that marks, after all, one of the most important differences between the *Prior Analytics* and the *Topics*. My claims will be (1) that perfecting a syllogism is not the same as reducing it to a perfect syllogism, in one or the other sense of 'perfect', and (2) that perfection and reduction together are what makes syllogistic a deductive system, as opposed to a mere collection of inference rules. Finally, there will be some speculation about why Aristotle's system was largely ignored by the later tradition.[3]

The verb ἀνάγειν (to reduce) appears for the first time in the *Prior Analytics* in chapter A7, 29^{b}1. Aristotle has just stated that 'all imperfect syllogisms are perfected through the first figure' (29^{a}30–1). In the next paragraph, he continues: 'But one can also *reduce* all syllogisms to the universal syllogisms in the first figure. For those in the second figure it is clear that they are *perfected* through these . . .'. Obviously, Aristotle implies that if a syllogism S_1 can be perfected through another syllogism S_2, then it can be reduced to S_2. Now since all the moods in A6 were in fact perfected through the first figure, one might think that 'reducing' and 'perfecting' are simply synonyms. Accordingly, commentators since Alexander of Aphrodisias (113. 5–9; among recent authors,

Patzig[4]) have assumed that if the two particular moods of the first figure (Darii and Ferio) can be reduced to the universal ones (Barbara and Celarent), the universal syllogisms must somehow be more perfect, or perfect in a more stringent sense, than the particular ones. But the following sentence shows that Aristotle did not think so: he declares that Darii and Ferio are 'perfect in themselves' (literally, 'perfected through themselves'), though they can also be proved indirectly through the second figure. That is to say, they can be reduced to second-figure moods that are themselves reducible to Barbara or Celarent. So a perfect mood can be reduced to an imperfect one, according to this passage, and that should be enough to show that not every case of reduction has to be a case of perfection.[5] But one might still hold that perfection is a special case of reduction, namely reduction to a perfect syllogism. I do not think this is correct either, but in order to show that, I will have to ask first what exactly Aristotle meant by 'perfecting a syllogism'.

The verbs τελειοῦν and ἐπιτελεῖν (to perfect) suggest that perfecting should be a way of transforming an imperfect syllogism into a perfect one. This has been understood in two ways, depending upon one's interpretation of the adjective τέλειος (perfect). A perfect syllogism is one in which 'nothing besides the assumptions is needed to make the necessity obvious' (A1. 24^{b}23–4). The difference between perfect and imperfect syllogisms lies in the fact that the validity of the perfect syllogisms is evident, which is not so for imperfect syllogisms. Aristotle declares the four moods of the first figure to be perfect (A4), and proceeds in the following chapters to prove the validity of the remaining moods by means of deductions that include one of the perfect moods as a syllogistic step. If perfecting consists in turning an imperfect syllogism into a perfect one,

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[4] *Die aristotelische Syllogistik*, 3rd edn. (Göttingen, 1969), 77.

[5] At A23. 40^{b}17, in a reference back to A7, Aristotle says that (all) syllogisms in the second and third figure 'are perfected through the universal syllogisms in the first figure and reduced to these', apparently obliterating the distinction between perfecting and reducing. Alexander of Aphrodisias (*in APr.* 255. 1–17) notices the difficulty and suggests two solutions: either Aristotle just means to say that all second- and third-figure syllogisms are reduced to these [in which case Aristotle would be saying twice the same], or he is using καθόλου instead of ἁπλῶς, to say that second- and third-figure syllogisms are 'generally' perfected through first-figure ones. I am more inclined to think that Aristotle's formulation is negligent—the statement at the end of A23. 41^{b}3–5 is accurate.

then Aristotle apparently thought that the syllogism to be proved is transformed into the perfect syllogism that occurs in the proof. Patzig[6] claims that this is indeed what Aristotle thought. When he comes to a syllogistic step involving a first-figure mood, he often says things like 'the first figure has come about' (γεγένηται). He also speaks several times of imperfect syllogisms as 'possible syllogisms', by which, since all syllogisms must be valid arguments, he can hardly mean anything but 'possibly perfect syllogisms'. Patzig notes that this way of speaking is misleading, since an argument in Darapti, say, does not *become* an argument in Darii just because its conclusion can be deduced from its premises by a deduction that contains a syllogism in Darii. This would certainly be a justified complaint, but I think that Aristotle's language does not imply this line of thought, and that it is in fact not plausible to attribute this view to him. When Aristotle says 'the first figure has come about', he need be taken to mean no more than that a premiss-pair of the first figure has been reached in the deduction; and the phrase 'possible syllogism' can just as well be understood as 'syllogism that can be perfected' (δυνατὸς ἐπιτελεῖσθαι), which takes us back to the question what Aristotle meant by 'perfecting'. What seems to me to be decisive, however, is the fact that it is wildly implausible to think of an imperfect syllogism as being transformed into the relevant perfect one in the case of indirect proofs. For while one can understand how Aristotle might have seen an argument in Cesare as merely another version of an argument in Celarent, this is certainly not so in a case where the syllogism that occurs in the deduction has as its conclusion the contradictory of one of the original premises. The proof for Baroco, for example, looks like this: Assume that M belongs to every N but does not belong to some X; then it will follow that N does not belong to some X. For if N belongs to every X and M belongs to every N, it follows (by Barbara, in the first figure) that M belongs to every X. But we assumed that it did not belong to some X (cf. A5. 27^{a}36–^{b}1). The first-figure syllogism has the form MaN, NaX / MaX (Barbara), and I do not see how this could, by any stretch of the imagination, be seen as a different version of an argument in the form MaN, MoX / NoX. If 'perfecting' means 'reducing to a perfect syllogism', then it should mean no more than 'prove to be valid by means of a perfect syllogism'.

[6] *Die aristotelische Syllogistik*, 140–3.

If we want to keep the supposition that perfecting must be a way of transforming an imperfect syllogism into a perfect one, the second interpretation of τέλειος looks more promising. John Corcoran[7] has argued that the distinction between a perfect and an imperfect syllogism is that between a full deduction and a valid inference which needs filling out. An inference may be valid but not obviously so, and one can show that it is valid by deducing the conclusion from the premisses using only primitive rules of deduction. Following this interpretation, Robin Smith, in his recent new translation of the *APr.*,[8] has decided to render τέλειος as 'complete' rather than 'perfect'. This is a plausible suggestion, because what Aristotle does in chapters A5–6 is just that—showing how the conclusion of an 'incomplete' or 'imperfect' syllogism can be deduced from its premisses. Corcoran concludes that the long deduction will then count as a perfect syllogism. But this no longer agrees with Aristotle's own explanation of the term τέλειος. He says that he calls a syllogism τέλειος if nothing *besides the premisses assumed* is needed to make the necessity obvious (24^b23–4; cf. also A4. 26^b30; A5. 27^a16–18; A6. 29^a15–16; A16. 36^a6–7). In general, he seems to think of a syllogism as consisting only of its premisses and conclusion. True, at A25. 42^a32 he says that every proof and every syllogism 'will have two premisses and no more—unless something is added, as we said in the beginning, for the purpose of perfecting (completing) the syllogisms'. Yet no amount of filling in will bring it about that the necessity of the conclusion is evident from the initial premisses alone. Once the deductive steps have been filled in, it will be obvious that the conclusion follows from the premisses, but not before; and this seems to be precisely the reason why Aristotle calls syllogisms that need filling in 'imperfect'. Hence I would argue that the remark in A25 is meant simply to forestall the objection that the deductions in A5–6 have more than two premisses—they do not, Aristotle wants to say, because the additional steps in the deduction do not add any new assumptions. Furthermore, before we decide to translate τέλειος as 'complete', we should consider that every syllogism must be complete in the sense that 'no further term is needed from the outside to bring about the necessity' (24^b21–2). Confusion between the two kinds of completeness apparently led some ancient commentators to sup-

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[7] 'Aristotle's Natural Deduction System', 91–4.

[8] Indianapolis, 1989.

pose that second- and third-figure syllogisms were not even valid by themselves and needed some help to make the conclusion follow (Ammonius 31. 28–33). It might be better to indicate the second kind of completeness by the word 'perfect', since it is a feature that need not belong to every valid deductive argument.

I think we should give up the supposition that perfecting consists in turning an imperfect syllogism into a perfect one. It is a procedure that serves to make it evident that a certain conclusion follows from certain premisses. What is perfected is, strictly speaking, not the syllogism, but the obviousness of the necessity. And Aristotle actually comes close to saying that in A5. 27^a17, when he explains why second-figure syllogisms are not perfect: 'for the necessity is perfected not just from the initial premises but also from others'. To make it evident that the conclusion follows one will presumably use only deductive steps that are themselves evidently valid— among them the perfect syllogisms. The proofs in A5–6 each contain one of the perfect syllogisms, and that must be the reason why imperfect syllogisms are said to be 'perfected through' and 're- duced to' perfect syllogisms. We seem, then, to get the same result as before: to perfect a syllogism is to reduce it to a perfect one.

But now one should note that in chapter A6 Aristotle points out several times that certain moods (Darapti, Datisi, Bocardo) can also be proved by the procedure he calls ἔκθεσις. The ecthetic proof for Darapti is set out in 28^a24–6: 'if both P and R belong to every S, then if one takes one of the S, say N, both P and R will belong to it, so that P belongs to some R'. If the letter N is here construed as standing for a general term, the proof coincides with the demonstrandum. Hence in this case, at least, one should take N to stand for the name of an arbitrarily chosen individual. But then the proof contains no syllogism (in the narrow sense) at all, which shows that perfecting need not take the form of proof through a perfect syllogism.[9] The proofs for Datisi and Bocardo can be con-

[9] As Ian Mueller points out to me, one might object that it is not clear whether Aristotle considers all proofs of validity in A6 as cases of perfecting. Ecthesis is mentioned only as an alternative method of proof, alongside *reductio ad impossibile*, and in A7. 29^a30 1 Aristotle simply asserts that 'all imperfect syllogisms are per- fected through the first figure', either directly or indirectly. But in his summaries at the end of chs. A5 and A6 (28^a4–9; 29^a14–18) he seems to refer back to the preceding proofs quite generally as cases of perfecting. The reason why ecthesis is not men- tioned in A7 is presumably that it does not lead to first-figure syllogisms and hence is not a method of reduction to the first figure.

strued as syllogistic without circularity, but if so, they probably do
not contain one of the perfect syllogisms. In fact, in the one passage
where Aristotle describes ecthetic proofs as syllogistic (A8. 30^{a}9–
14), he explicitly says that the syllogisms will be in the same figure
as the syllogism to be proved, that is, second and third, respectively.
So perfection is in principle independent of reduction to perfect
syllogisms. It consists in proving the validity of a syllogistic mood
by making it evident that the conclusion follows from the
premises, by a deduction that may or may not contain one of the
perfect syllogisms. I have already noted that reduction is also inde-
pendent of perfection, since Aristotle acknowledges that some of
the perfect moods can be reduced to imperfect ones. What, then
does he mean by 'reduction'?

Here I would like to begin by looking at A45, the other chapter
in the *APr.* in which Aristotle discusses the reduction of syllogistic
moods to one another. A45 comes at the end of a long section
(A32–45) in which Aristotle explains how ordinary-language argu-
ments can be put into syllogistic form. A32 states the topic: 'how we
are going to *reduce* (ἀνάγειν) syllogisms to the aforementioned
figures'. In the next sentence, Aristotle picks this up by saying 'if we
can *resolve* (ἀναλύειν) syllogisms which have been produced into
the aforementioned figures' (46^{b}40–47^{a}4). ἀνάγειν and ἀναλύειν are
used interchangeably throughout this part of book A. As a special
case of this sort of reduction or analysis, A45 treats the question of
how an argument that has already been put into syllogistic form can
be 'reduced to' a syllogism in another figure—that is, reformulated
as a syllogism in a mood from another figure. Aristotle considers
only pairs of syllogisms that have the same form of conclusion. He
notes at the beginning (50^{b}8–9) that this kind of reduction is pos-
sible only for some, not for all, moods. For example, Barbara is not
mentioned at all, because it is the only mood with a universal
affirmative conclusion. Aristotle goes through the figures and
shows how, by conversion of one or both premises, first-figure
syllogisms can be transformed into second-figure ones, second-
figure ones into first-figure ones, third-figure ones into first-figure
ones and vice versa, and so on.[10] The only operation considered

[10] In those cases where Aristotle converts a universal affirmative premiss to a
particular one, such as Darapti to Darii, Felapton to Ferio, the premisses of the
second syllogism are weaker than those of the first, and one might object that this
can no longer count as a re-formulation of the original argument, while it remains

here is conversion—understandably, since the indirect proofs in
A5–6 did not lead to other syllogisms with the same conclusion as
the one to be proved.

Though it is true, of course, that a syllogism that can be reduced
to another in this way can also be proved to be valid by the same
method if the mood to which it is reduced is already accepted as
valid, this does not seem to be the point in which Aristotle is
interested here. The words 'perfect' and 'perfecting' do not occur
at all, since after all this sort of reduction works in both directions
between moods of all three figures. Rather than read this chapter as
trying out different axiomatizations for syllogistic (as suggested e.g.
by Patzig[11]), I would suggest that we should compare the reductions
performed here with a kind of ἀναγωγή that occurs elsewhere in
Aristotle's treatises and which consists in trying to classify a larger
number of cases under a few general headings. So, for example,
Aristotle repeatedly claims that all pairs of opposites can be re-
duced to 'the one and the many' as genera or principles (*Metaph.* I.
4. 1055^{b}26–9; cf. Γ 2. 1004^{b}27–1005^{a}2). The mysterious reduction of
opposites is always assumed as given, but there is an extended
example of this kind of reduction in *GC* 2. 2. 329^{b}15 ff., where
Aristotle shows how all the differentiae of tangible bodies can be
'reduced' to the four primitive ones, hot and cold, wet and dry, by
being explained as special forms of them. An example that is closer
in subject matter to *APr.* A45 occurs at *SE* 6. 168^{a}17–20. Aristotle
has just listed and classified various types of fallacies. Then he
remarks 'One must either classify (διαιρετέον) apparent syllogisms
and refutations in this way, or else reduce (ἀνακτέον) them all to
ignoratio elenchi, taking that as the starting-point (ἀρχή). For all the
ways ⟨of fallacious reasoning⟩ we mentioned can be resolved
(ἀναλῦσαι) into the definition of refutation'. That is to say, every
type of fallacy can be described as a case of *ignoratio elenchi*
because it will violate one of the conditions in the definition of a

the case that the first syllogism can be reduced to the second in the sense of 'proved'.
However, it is still true that given the premisses of Darapti or Felapton, one can
always use the same *terms* to produce a syllogism in Darii or Ferio. The fact that
Aristotle limits himself to syllogisms with the same conclusion, and also his use of
ἀναλύειν, seem to me to support the interpretation that he is thinking of re-formulat-
ing a given argument, or using the information given in its premisses to produce
another argument for the same conclusion, rather than proving validity.

[11] *Die aristotelische Syllogistik*, 55.

valid refutation. Here as in *A Pr.* A45 ἀνάγειν and ἀναλύειν are used
as synonyms.[12] This suggests that the kind of reduction Aristotle
had in mind in A45 consisted in seeing whether syllogisms from one
figure could be subsumed under the heading of a mood from an-
other figure as being different versions of it. If this is what he was
doing, then what he shows in that chapter is, among other things,
that reduction in the sense of analysis does not offer a way of
ordering the syllogistic moods or figures in such a way that the
moods of any two figures can be subsumed under those of one
other figure. There is also no way in which one of the figures can be
said to be prior to the others on the ground that their moods can be
reduced to its moods, but not the other way around.[13]

By contrast, the method of reduction discussed in A7 serves to
do precisely that. If reduction is construed, not as a way of trans-
forming a syllogism in one figure into a syllogism in another figure,
but as proving its validity by a deduction that uses a syllogism from
another figure, then all the other moods can be reduced to those of
the first figure—or indeed, as Aristotle shows in A7, to the two
universal moods of the first figure alone. Aristotle evidently knew
that this second form of reduction is not the same as the method he
considers in A45, for at the end of that chapter he says: 'It is now
clear that the same syllogisms cannot be resolved in these figures
[sc. second and third] that could also not be resolved into the first;
and that when we reduce the syllogisms to the first figure, these are
the only ones that are brought to a conclusion by *reductio ad
impossibile*.' But the exercises in transformation of A45 would
certainly also have shown him that reduction in the sense of prov-
ing validity through another syllogism does not suffice to single out
one particular figure or set of moods as the one to which all the

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[12] For ἀναλύειν alone in connection with classification under genera, see *Metaph.*
Δ 28. 1024ʰ9–16: ἕτερα δὲ τῷ γένει λέγεται ὧν τε ἕτερον τὸ πρῶτον ὑποκείμενον καὶ μὴ
ἀναλύεται θάτερον εἰς θάτερον μηδ' ἄμφω εἰς ταὐτόν . . .

[13] Robin Smith ('Some Studies of Logical Transformations in the *Prior
Analytics*', *History and Philosophy of Logic*, 2 (1981), 1–9) has suggested that A45
is one of several chapters in the *A Pr.* that contain attempts by Aristotle to find some
general principles for syllogistic before he discovered the method of perfecting. In
his commentary (1989) he says that the topic of A45 might be stated as 'Is indirect
proof necessary?' I do not think this is an accurate statement of the topic, since re-
formulation is not the same as proving validity. But it might be that Aristotle had at
first hoped to unify the system of syllogisms by grouping all valid moods under some
most general ones, preferably from the same figure.

others should be reduced. Once indirect deductions are admitted, it is just as easy to reduce all first- and second-figure moods to those of the third figure as it is to reduce second- and third-figure moods to those of the first. This is, after all, why Aristotle was said to be trying out different axiomatizations for syllogistic in A45. Reduction to another syllogism will show that one mood is valid if the other is, but since it works in both directions between each pair of figures, it will not establish any order of priority among the figures.

This is the point at which the notion of perfection comes as it were to the rescue. If one set of syllogisms can be singled out as being perfect, that is, evidently valid and not in need of proof, then this offers a non-arbitrary way of determining which moods should count as basic, so that the others should be reduced to them and not vice versa. By combining reduction and perfection, then, Aristotle managed to unify syllogistic in such a way that it can be called a deductive system.

Now since the first-figure moods are chosen as primitive on epistemological grounds, it is tempting to see Aristotle as devising axioms for his deductive theory. The validity of the perfect syllogisms is supposed to be immediately evident, just as, it seems, the principles of a demonstrative science are supposed to be grasped without proof. Furthermore, the word $\dot{a}v\dot{a}\gamma\varepsilon\iota\nu$ itself suggests that what something is reduced to should be a kind of principle ($\dot{a}\varrho\chi\dot{\eta}$).[14] Yet as far as I know, Aristotle himself never describes the perfect moods as $\dot{a}\varrho\chi\alpha\dot{\iota}$.[15] It should also be kept in mind that a modern formal model of his syllogistic would treat at least one of the conversion rules as primitive alongside the perfect moods. Aristotle never considered this, I think, because he did not set out with the idea of devising a deductive system, either axiomatic or natural deduction, in which certain theses or rules were to function as primitive. He seems to have been interested rather in establishing an order of priority among the moods, and so A7 talks only about reducing all other moods to those of the first figure. What

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[14] For the association of $\dot{a}v\dot{a}\gamma\varepsilon\iota\nu$ with $\dot{a}\varrho\chi\dot{\eta}$, cf. the passage quoted from *SE*, and also e.g. *Ph.* B3. 194ᵇ22–3; *Rhet.* A4. 1359ᵃ38; *EN* 3. 5. 1113ᵇ19–20; *Metaph.* E3. 1027ᵇ14–15.

[15] When he speaks of 'syllogistic principles' ($\sigma\upsilon\lambda\lambda\sigma\gamma\iota\sigma\tau\iota\kappa\alpha\dot{\iota}$ $\dot{a}\varrho\chi\alpha\dot{\iota}$) at *Metaph.* Γ 3. 1005ᵇ7, he is clearly thinking of the principles of non-contradiction and excluded middle presupposed by all deductive arguments.

Aristotle created was in fact a deductive system, but not because he set out to create one from the very start.

There is also a deeper reason why, even on the unlikely assumption that he considered the first-figure moods as propositions, Aristotle should quite properly have hesitated to call the perfect syllogisms principles of the others: namely that they do not stand to the derived moods in the relation in which the principles of an Aristotelian demonstrative science must stand to the theorems derived from them. In spite of some attempts by Aristotle to fit it into his theory, the relation of logical consequence or implication, which exists between the premisses and conclusion of a valid argument, but also between certain syllogistic moods considered as theses, is not one of the four explanatory relations set out in the doctrine of the Four Causes. Although Aristotle wishes to say that the premisses are somehow the cause of the conclusion, he wavers about how the relation fits into his scheme. At *Ph.* B3. 195ª18–19 (= *Metaph.* Δ 2. 1013ᵇ20), he claims that the premisses are the material cause of the conclusion; but in *Ph.* B9. 200ª15–30, he suggests, rather, that the conclusion is related to the premisses as matter to form, or means to end. The second suggestion is actually the more plausible of the two, since it is based on the consideration that the end implies the means as the premisses imply the conclusion, but not vice versa. But it would obviously not be plausible to say that the premisses consist of the conclusion, or that the conclusion is there for the sake of the premisses. As a matter of fact, the first premisses of an Aristotelian science must be 'causes of the conclusion' (*APo.* A2. 71ᵇ22) in two ways: they must imply the conclusion, of course, but they must also state the reason why what is asserted in the conclusion is the case (cf. Alex.Aphr. *in APr.* 21. 12–18). But one cannot claim that Barbara and Celarent, say, explain why Baroco and Camestres are valid. Arguments in all four moods are valid because their conclusions follow from their premisses or, as one might also say, they satisfy the definition of 'syllogism'. But this explains very little, and of course does not show that the validity of any of the moods can be deduced from that definition. So syllogistic is indeed a deductive system, but it is not an Aristotelian science.[16]

[16] None the less, there is some evidence that Aristotle might have thought of the *Analytics* as offering a science of arguments. In *Rhet.* A4. 1359ᵇ10, for example, he refers to ἀναλυτικὴ ἐπιστήμη. More important than this phrase, which might after all be non-terminological, is Robin Smith's observation ('The Mathematical Origins of

Aristotle himself never explains why he finds it important to show that all syllogisms can be reduced to the perfect moods of the first figure. But later Peripatetics raised the question, and this led to the dispute about perfect syllogisms that I mentioned before. This debate must go back at least to the time of Boethus of Sidon in the first century BC.[17] Ammonius (31. 13–25) reports that Boethus 'rightly thought, and indeed proved, that all syllogisms in the second and third figure are perfect (τέλειοι)', and that he was followed by Porphyry, Iamblichus, Maximus, Syrianus, Proclus, Hermias the father of Ammonius—and of course Ammonius himself. Now a few pages before (14. 28–9) Ammonius has explained the word τέλειος as 'self-sufficient, not in need of anything in order to be ⟨a syllogism⟩'; hence one might think that Boethus was merely defending the view that second- and third-figure syllogisms are valid in themselves.[18] No wonder that Ammonius, who claims at first that Boethus was contradicting Aristotle, ends up by pointing out that Boethus' view can in a way be derived from Aristotle's own words (33. 18–21). But in fact the story seems to have been more complicated.

Some of the background to Ammonius' remarks can be found in Themistius' treatise 'in reply to Maximus about the reduction of

Aristotle's Syllogistic', *Archive for History of Exact Sciences*, 19 (1978), 201–9) that the language in which Aristotle expounds syllogistic in the systematic chapters of the *APr.* is strikingly similar to the language in which theses are formulated and proved in Euclid's *Elements*. Since mathematics is Aristotle's paradigm of a demonstrative science—however inadequate syllogistic may be to represent its deductive structure—this similarity is at least an indication that Aristotle tried to set out the theory of syllogisms in the form of a demonstrative science. The use of the word ἀπόδειξις to refer to the proofs of validity in chs. A5 and A6 points in the same direction. But what corresponds to Euclid's exposition of geometry is not the system of syllogisms considered in A7, but rather the metatheory of deductive argument, whose theorems are not themselves syllogisms but statements about syllogisms such as the one with which Aristotle introduces the valid moods of the first figure in A4. 25^{b}32–5. This metatheory would seem to include the (non-syllogistic) proofs given for the conversion rules in A2, and also the definitions of *a*- and *e*-premisses in A1. 24^{b}28–30, to which Aristotle appeals for the claim that the first-figure moods are evidently valid, that is, perfect. As Ian Mueller points out to me, these definitions could indeed be said to explain why Barbara and Celarent are valid—which is presumably the reason why the 'dictum de omni et nullo' was later considered as the first principle of syllogistic. However, the underlying logic of 'analytics' as a metascience would have to be considerably stronger than 'syllogistic'. (I take this point from Ian Mueller's unpublished paper 'Interpreting Syllogistic'.)

[17] For the (uncertain) date of Boethus, see P. Moraux, *Der Aristotelismus bei den Griechen* (Berlin, 1973), 143.

[18] So ibid. 167.

the second and third figures to the first'.[19] In this treatise, Themistius
argues against Maximus' claim that 'the categorical syllogisms in
the second and third figure are perfect in themselves and do not
need either demonstration or reduction to the first figure'.
Themistius defends the supposedly Aristotelian view that the first
figure is naturally prior to the others (168. 30–6) because it is their
'cause et génératrice' (? αἰτία καὶ γένεσις, 167. 2). The second and
third figures, he says, are 'generated' by the first by conversion, that
is, changing the order of terms in the first and second premiss,
respectively (170. 27–171. 26);[20] and the valid moods of those
figures derive their validity from those of the first (167. 40–168. 5;
169. 13; 176. 9–10; 179. 22). Obviously, Themistius—unlike
Aristotle—did take the first-figure moods to be 'principles' of the
others. Maximus had argued for the view of Boethus and other
Peripatetics (171. 3–5), mainly, it seems, on the basis of the two
theses (1) that first-figure moods can be reduced to second- and
third-figure ones just as well as the other way around (166. 28–32;
169. 16–17), and (2) that the second- and third-figure moods can be
shown to be valid without recourse to the first figure (170. 4–5; 176.
11–12; 177. 2–3). For (1) he probably appealed to *APr*. A45—
Themistius grants the point and hence does not discuss it. In
support of (2), Maximus, and before him Boethus, apparently
produced various methods of proving the validity of second- and
third-figure moods without reduction to the first figure. One of
these, not surprisingly, was ecthesis (177. 4).[21] The second, how-
ever, is very interesting: it consists in showing that certain moods

[19] Pub. in French trans. from an Arabic source by A. Badawi, *La Transmission de
la philosophie grecque au monde arabe* (Paris, 1968), 166–80. The text seems con-
fused in several places, and I cannot decide where this is due to Themistius, to the
Arabic translation, to the French translation, or to a combination of these. I think,
however, that the passages I am using here are clear enough.

[20] This is not nonsense, as Lee thinks (*Die griechische Tradition*, 123), but trivial:
'conversion' in the sense in which it is used here is not a logical operation. It should
be noted that Themistius uses 'reduction' only in the sense in which it is synonymous
with 'analysis'. So he says (173. 41–4), 'Aristote, quoiqu'il ne lui soit pas arrivé de
réduire le quatrième mode (de la deuxième figure) à la première figure, de toute
façon il le démontre au moyen de la première figure, car la réduction à l'absurde se
fait dans cette figure.' He seems to think that the imperfect syllogisms become valid
only after being transformed into first-figure ones; cf. 175. 18–29.

[21] The French translation has 'hypothèse' here, but the Arabic text must have had
a word translating ἔκθεσις, as is clear from an earlier passage, 175. 34, where
Themistius quoted *APr*. A6. 28^{b}14–15—not A7. 29^{b}7–8, as the translator claims.
There is also a method of *reductio ad absurdum*, ascribed to Boethus (177.7 ff.), that
I will not try to discuss.

can be seen to be valid by appeal to the sort of consideration that
Aristotle himself uses in *APr.* A4 to show that the first-figure
moods are perfect. Themistius repeatedly ascribes to Maximus the
principle 'what is totally separate is also separate in all its parts'
(172. 25–6; 173. 34–5; 174. 17–18). The proof for Festino (second
figure), based on this principle, is set out as follows: 'une partie de
C est contenue en A, tout A est séparé de B, ce qui en lui est partie
de C est donc séparé de B' (173. 21–2). The reasoning seems to be:
if A is totally separate from B (second premiss), then the part of it
that is a part of C (first premiss) must also be separate from B.
Similar proofs were apparently offered for Cesare, Camestres, and
Baroco, but the text is more confused in those passages. In the case
of Darapti (third figure), the reasoning seems to be: if the middle
term is a part of both extremes (e.g. B and C are both said of all A),
then the major will be said of a part of the minor (B will be said of
a part of C, namely A); cf. 174. 35–9. It appears that Boethus and
his followers were elaborating upon the terminology of wholes and
parts that Aristotle uses only occasionally,[22] but after all quite
prominently. For example, this is how Aristotle first introduces the
perfect syllogisms in Barbara and Celarent, *APr.* A4. 25^{b}32–5:
'When three terms are related in such a way that the last is in the
middle as a whole and the middle is or is not in the first as a whole,
there will necessarily be a perfect syllogism of the extremes'. In A1,
'being (or not being) in something as a whole' appears twice—
among the expressions to be explained (24^{a}13), and at the end of
the chapter, where Aristotle declares that for one thing to be in
another as a whole is the same as for the second thing to be said of
every of the first (24^{b}27–9). There follows Aristotle's explanation
of the phrase 'to be predicated of every', and in the rest of the
treatise the expression 'in something as a whole' occurs hardly at
all, except for chapter A4. Aristotle evidently came to prefer the
locutions 'to be predicated of every/no' and 'to belong to every/no'.
However, the standard expressions for particular and universal
premisses, ἐν μέρει and καθόλου, also show that wholes and parts
must have played some role in the prehistory of syllogistic. The
sentence just quoted from *APr.* A4 invites the idea that syllogistic
premisses should be interpreted in terms of wholes and parts. Ar-

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[22] For Boethus, see 178. 11–12, where Themistius claims that he explained the
expression 'dans tout' (ἐν ὅλῳ) in a different way from Aristotle's.

istotle himself suggests that the perfect syllogisms can be seen to be valid by reflecting upon the expressions 'said of every/no' (A4. 25^{b}39–40, 26^{a}27–8; cf. also A14. 32^{b}40–33^{a}5, 33^{a}24–5). Similarly, one might suggest that the validity of syllogisms can be seen by reflecting upon the meaning of the phrases 'in something as a whole' and 'separated from something as a whole' (a phrase not used by Aristotle himself, who has the rather misleading 'not to be in something as a whole'). Since this is exactly the kind of procedure Aristotle employs to argue for perfection, one could then also claim that syllogisms recognized as valid in this way should count as perfect. This second sort of argument, then, shows why Boethus would indeed have disagreed with Aristotle's claim that only the first-figure moods are perfect.

Thesis (2), I think is correct—the validity of second- and third-figure moods can be established independently of reduction to the first figure, and Boethus was right in claiming that all valid moods are perfect, or at least that there are more perfect moods than the four that Aristotle had singled out.[23] Aristotle's reasons for declaring the four first-figure moods to be perfect may have been stronger than one realizes at first sight,[24] but he certainly did not state them very clearly. One might suspect, indeed, that he found it rather convenient to have all perfect syllogisms assembled in one and the same figure, and did not bother to look further. For a modern reader, Boethus' and Maximus' principles about wholes and parts are reminiscent of Euler diagrams,[25] which can be used precisely to make the validity of certain inferences evident. It is no accident, for example, that Themistius complains that on Maximus' principles the moods Celarent, Cesare, and Camestres would seem to coincide (171. 38–172. 8): the corresponding Euler diagrams would be the same. If such methods count as establishing validity, reduction to the first figure will not be needed for the purpose. Now Euler

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[23] Themistius suggests in one passage (172. 8–10) that Boethus did not claim perfection for all the moods of the second and third figures. Given that Boethus used several methods of proof, including ecthesis and *reductio ad absurdum*, I am inclined to think that this is correct. To show that the validity of all syllogistic moods can be established without reduction to the first figure is not the same as showing that they are all perfect, though Boethus' opponents may have thought so, and Maximus apparently did make the stronger claim.

[24] See Patzig, *Die aristotelische Syllogistik*, ch. 3.

[25] See Lee, *Die griechische Tradition*, 129 n. 20.

diagrams might not be considered as proofs,[26] precisely because they are not deductions. Yet they could surely be used to demonstrate the validity of syllogisms much in the way in which truth-tables are used in present-day propositional logic. To show that most or all syllogistic moods can be seen to be valid by Euler diagrams, or by reflecting upon the meaning of the logical constants used in syllogistic premisses, should be sufficient to establish that they are not dependent on first-figure syllogisms for their validity. In this sense, they do not need demonstration.

Now if more than the four moods chosen by Aristotle count as perfect, then one has to admit that the choice of one set of syllogisms rather than another as primitive is to some extent arbitrary. But this does not mean that there is no point in developing a deductive system to exhibit the logical—as opposed to epistemological—relations between syllogistic moods. By contrast, the result of proving validity piecemeal, as it were, using different methods for different cases, will not be a deductive system. Themistius is right to complain that Maximus' and Boethus' procedure lacks generality (173. 35–8; 177. 5–7).

Ammonius' and Themistius' reports are not full enough to allow us to decide whether Boethus' main aim was just to refute the misunderstandings of those who claimed that the first-figure moods were the 'cause and origin' of all others, or whether he set out to criticize Aristotle. If it was the second, Boethus may have failed to see the point that reduction to the first figure is a method not only of proving validity, but also of unifying syllogistic in a way that his methods would not achieve.

However that may be, it seems obvious that the emperor Julian was right to decide the dispute between Maximus and Themistius in favour of Maximus (Ammonius 31. 18–22). As we saw, all the major Neoplatonists agreed with him. Unfortunately, the arguments of Boethus and his followers seem to have led to the view that reduction to the first figure is unimportant, since it is not indispensable as a method of proving validity. Perhaps this was

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[26] It should be noted, however, that Aristotle himself occasionally refers to the appeal to the meaning of 'predicated of every' as a proof (*ἀπόδειξις*, A14. 33ᵃ27 and A9. 30ᵇ2. where the words 'the proof is the same' presumably mean that a syllogism is perfect).

the main reason why Aristotle's own deductive system fell into neglect and was eventually replaced by the notorious rules of the syllogism.[27]

8

Epilogismos: An Appraisal

MALCOLM SCHOFIELD

INTRODUCTION

Readers of Epicurus and other Epicurean authors frequently meet the expressions *epilogizesthai, epilogismos*, etc. Sometimes at least these words seem to have something like the status of technical terms. It is plausible to construe the decision to use them, rather than other expressions for thinking and its species, as designed to indicate something distinctive in Epicurean epistemology or in the Epicurean conception of what is and is not proper philosophical method.

No Epicurean definition of *epilogismos* etc. is preserved. This is hardly surprising, in view of their general theory of language and well-known aversion to definition (see LS 19, esp. F–H[1]). Examination of Greek and specifically Epicurean usage is therefore the only way in which we can achieve an understanding of the terms as they occur in the texts which interest us. But despite various attempts by recent scholarship to do just this, notably in valuable studies by Arrighetti and Sedley which survey all the Epicurean evidence, the literature contains no wholly compelling story on the subject. Arrighetti illuminates very well the variety of uses to which the *epilog-* vocabulary is put, but his idea that *epilogismos* of the goal of living is a sort of comprehensive appreciation of the main truths of Epicurean ethics has not found much favour.[2] Other scholars try

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[1] LS numbers refer to texts included in A. A. Long and D. N. Sedley, *The Hellenistic Philosophers*, 2 vols. (Cambridge, 1987).

[2] Arrighetti (1952: 123, 144), criticized principally by De Lacy (1958: 179–83). What he illuminates is, for example, the frequency with which *epilogizesthai* is employed to mean 'take account of', 'notice', etc. (see e.g. pp. 135–40), or again 'examine' (p. 142).

for a single central meaning. Asmis (1984: 177–8) proposes 'calculation' or 'analysis'; De Lacy (1958: 179–83; cf. 1978: 100 n. 34) argues for 'empirical generalisation/inference', refined by Sedley (1973: 27) to 'reasoning based on empirical data'. None gives a plausible rendering of all 'technical' Epicurean uses of the *epilog*-expressions, and indeed the translations they give in particular passages tend to diverge—usually for understandable and creditable reasons—from those they officially endorse.

EVERYDAY APPRAISAL

De Lacy, followed in this by Sedley, supposed that *epilogizesthai* etc. are employed to signal to the reader the *empirical* character of Epicurean method. They rightly suppose an implicit contrast with the methods of reasoning favoured by rationalist philosophers, or (to put it more precisely) philosophers who set store by the various techniques the Epicureans assign to logic or dialectic (cf. LS 19H). They are wrong—I contend—to make empiricism the focus of the contrast. I shall make it my first main thesis in this chapter that what Epicurus means to encapsulate in *epilogizesthai* etc. is a vindication of our *everyday procedures* of assessment and appraisal. These are what we need in order to steer the correct path in ethics and the search for truth, not the specialized methods of proof or syllogism favoured e.g. by Aristotle. Of course, these commonly practised procedures of appraisal must be *applied* above all to experience, according to the Epicureans. So there is an intimate connection between their use of *epilogizesthai* etc. and their empiricism. To quote a favourite Epicurean usage: *epilogismos tōn phainomenōn* indicates the empiricist method—but what shows it is empiricist is *tōn phainomenōn*, not *epilogismos*.

In a famous passage on time Epicurus writes as follows (*Ep. Hdt.* 72–3):

We must not adopt special expressions for it, supposing that this will be an improvement: we must use just the existing ones. Nor must we predicate something else of it, as though it had the same essence as this quite individual property (this is what some people do): we must just make a particular *appraisal* of what we associate this individual property with and measure it against. After all, it needs not proof (*apodeixis*) but *appraisal* (*epilogismos*) to see that we associate a certain individual accident with

days and nights and their parts, and likewise with the presence and absence
of feelings, and motions and rests; and that it is in connection with them
that we think of this very thing in virtue of which we use the word
'time'.

I read this text as embodying the point about Epicurean
epilogismos I have just enunciated. The antithesis it makes is be-
tween a specialized philosophical technique (proof, apparently as-
sociated with predication of essences) and the common-or-garden
procedure of assessing or appraising in which we all engage in
many contexts. It runs parallel to the initial antithesis between
'special expressions' and 'the existing ones'—or, as Bailey (1926:
45) puts it, those 'in common use'.

TECHNICAL AND
NON-TECHNICAL VOCABULARY

In the Introduction, I spoke of the *epilog-* words as approximating
to the status of technical terms in Epicureanism. The text quoted in
the previous section reminds us of Epicurus' distaste for technical
vocabulary. In his edition of book 28 of Epicurus' *On Nature* David
Sedley (1973: 21–3) has documented the course of debate in the
very early days of the school over the propriety or otherwise of the
use of everyday terminology for philosophical purposes. He notes
Epicurus' eventual decision—put to effect in passages like *Ep.Hdt.*
72–3—to make his vocabulary conform with common usage as far
as possible (pp. 21–2). LS 19E reminds us of this outcome (*Nat.* 28,
frag. 13, 4, inf. 1 ff.):

But perhaps this is not the moment to prolong the discussion by citing
these cases? Quite so, Metrodorus. For I expect you could cite many cases,
from your own past observations, of certain people taking words in various
ridiculous senses, and indeed in any sense rather than their actual linguistic
meanings. Whereas our own usage does not flout linguistic convention, nor
do we alter names with regard to things evident.

If, then, Epicurus does put the *epilog-* words to special philosophi-
cal employment, we should expect him to make their use in ordi-
nary speech the basis for the special use, and indeed the clue to it.
An Epicurean would clearly be unhappy at being thought to have
introduced a distinct technical meaning for this vocabulary.

So what did Greeks before and in Epicurus' time mean by
epilogizesthai? LSJ suggest, so far as I can see correctly: 'reckon
over, conclude, consider; take into account'.[3] And this is how the
word is used, with no special—let alone technical—Epicurean
philosophical connotation, in a much greater number of Epicurean
texts than scholars have generally been prepared to allow. There is
a famous passage on determinism by Epicurus himself (LS 20C(6),
from *Nat*. lib.incert.):

And even if he [sc. the determinist] goes on to infinity saying that *this*
action of his is in turn necessitated, always appealing to arguments, *he does*
not take [this thesis] *into account* in imputing to himself the responsibility
for having reasoned correctly and to his opponent that for having reasoned
incorrectly.

Someone who in practice imputes responsibility fails in so doing to
take into account the determinism he insists on in theory, and so
(cf. C(5)) refutes himself.[4] Or again, in book 28 of *On Nature* (frag.
13, col. 10, sup. 10 ff.):

Yet he [sc. the person tricked by the sophist] *had not considered* that apart
from these sorts of cases which the sophist produces it is impossible to
know and to be ignorant of the same thing.

Further instances:

We should not spoil what we have by desiring what we have not, but
consider that even that was the gift of fortune.   (*Gnom.Vat.* 35)

. . . where one puts the full complement of goods before one's eyes, and
considers what it contains and how many and how great—what: that they
are goods; how many: that they are many; how great: that they are
great . . .   (*PHerc.* 831. 14. 3 ff.; cited in Sedley 1973: 29)

Philodemus uses the verb in this same sense on three occasions at
Sign. XXVIII. 15 ff. in reporting Demetrius Laco on the errors of the
Stoics (varying 'they don't consider/appreciate' with 'they don't see
(*blepein*)' and 'they haven't made the distinction (*dieilēphenai*)').

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[3] LSJ is H. Liddell, R. Scott, and H. S. Jones, *A Greek–English Lexicon* (Oxford,
1940).

[4] It is interesting that Sedley (1973: 27) translates *epilogizetai* here as 'is reasoning
it empirically', but in his explanatory gloss has 'take into account'. Arrighetti
(1952: 135–6) is right about the use of *epilogizesthai* in this text and the next one
cited.

Sedley (1973: 33–4) suggests that these instances in Philodemus are untypical of Epicurean usage, but our survey shows that this is not so.

None the less it is indisputable that Epicureans sometimes use *epilogizesthai* as a term of art. Even if he is not necessarily quoting verbatim from an Epicurean source throughout the following extract, Plutarch gives a good impression of this usage when he writes (*Non Posse* 1089d) that 'The stable and settled condition of the flesh and the trustworthy expectation of this condition contain the most extreme and most assured delight for those who are capable of *assessing* [or, *appraising*].' My translation, which needless to say is not uncontroversial, sticks close to the ordinary usage we have been documenting. Indeed, if someone took it just *as* another instance of that usage, it would be impossible to prove them wrong. The case for thinking that it contains at least a reminiscence of *epilogizesthai* as a term of art is that Epicurus presumably refers implicitly to *the sort of* assessment or appraisal which can be adequately conducted only in accordance with Epicurean principles, namely those discussed in pp. 230–2. That is, *epilogizesthai* here retains its usual sense, but enriched with a specific philosophical reference. This is a pregnant rather than a technical usage. Asmis (1984: 177–8) is right to think of it as introducing a sort of *analysis*.[5] But as a translation 'analyse' will not do: it doesn't straddle *both* the ordinary *and* the pregnant usage.

The verb *epilogizesthai* in its pregnant usage evidently spawned further *epilog-* vocabulary (or distinctive uses of *epilog-* vocabulary) which *does* approximate to something technical: as, for example, the adjective *epilogistikos*, with its adverb *epilogistikōs*, on which I comment in the next section; and *epilogisis*, an expression used several times in extant passages of Epicurus himself. *Epilogismos* was an already existing coinage, at any rate if the manuscripts of Aristotle's *Politics* 1322ᵇ35 are to be trusted, but taken over by Epicurus as a noun to correspond to his pregnant use of *epilogizesthai*. (Its likeliest meaning in Aristotle (*pace* LSJ) is as in Epicurus and the Epicureans 'appraisal'; for he is talking of '*epilogismoi* and *exetaseis*, examinations, and *proseuthunai*, additional audits, of those in office'.)

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[5] She actually offers 'calculate' as the best *translation* (*faute de mieux*); but this does not express what she thinks is usually meant, namely 'analyse'.

EPILOGISMOS AS COMPARISON

I considered above (pp. 222–3) a passage of *Ep.Hdt.* recommending *epilogismos* of phenomena we associate with time, especially as regarding its measurement. I suggested that what Epicurus was urging upon us was *everyday appraisal* as opposed to a specialized technique of proof. Our consideration of *epilogizesthai* in the previous section encourages us to guess that this essentially everyday practice of appraisal is none the less pregnant with a particular Epicurean reference when thus recommended as a method. We must now attempt to say more about what this method is.

A key text is KΔ 22:

We must *appraise* (*epilogizesthai*) the end which has been laid down[6] and every clear presentation, to which we refer the opinions we form. Otherwise, all will be full of doubt and confusion.

The *epilog-* vocabulary in its pregnant use is applied in two principal areas: ethics and scientific inference. This passage provides a rare context in which it is employed with respect to both simultaneously. It accordingly constitutes a control on interpretation. Clearly, the story we tell about how *epilogismos* works in ethics must have some structural affinity with what we say about its role in scientific inference, if the application of *epilogizesthai* to both spheres in KΔ 22 is not to be dismissed as little better than a pun.

I shall argue as my second main thesis that what the Epicureans had in mind by *epilogismos* was a *comparative* form of appraisal. In science, what we must do is *compare* all our clear presentations of, for example, men to determine what is common to all and what is merely peculiar to some. Then we will be in a position to infer—by what they called the 'likeness method'—what the men are like whom we have not seen. In ethics, we must *compare* pleasure with pain. Then we will appreciate that the one is easy to obtain, the other either short-lived or not intense; and in particular circumstances we shall determine how to act by what Epicurus calls 'the

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[6] 'Has been laid down' translates ὑφεστηκός, which has been found difficult to interpret. Thus Bailey (1926: 101) has 'the real purpose', Asmis (1984: 178 n. 9) 'the underlying end'. I conjecture that the expression functions as the perfect passive participle of ὑφίστασθαι in the relevant use (LSJ, s.v. ὑφίστημι AII).

comparative measurement of advantages and disadvantages'
(*Ep.Men.* 130).

In works on ethics and scientific inference it is not hard to find
texts containing instances of the *epilog-* vocabulary which are
compatible with this interpretation. I shall quote and discuss some
in due course. But although they are consistent with the interpreta-
tion, it cannot be claimed that they make it inevitable. Before
turning to these passages, therefore, we must first consider some
other evidence which puts the reading of *epilogismos* as compar-
ison beyond reasonable doubt.

In the final section of his *On Anger* Philodemus reports some
arguments which he calls *epilogismoi* (XLVI. 17–18) or *logoi
epilogistikoi* (XLIV. 38–9). Sedley (1973: 29), in line with his general
view of *epilogismos*, suggests that the common feature is their
appeal to experience. But Philodemus seems to have in view a
particular *species* of Epicurean argument (while distancing himself
from these instances of it); and what strikes the reader here is the
systematic reliance on analogy. The first of the three arguments
runs as follows (XLVI. 18–40):

If the wise man is grateful to those who have on their own initiative
treated him well, he will also be angry with those who have voluntarily
caused him harm; and if he doesn't get angry with the latter, he won't be
grateful to the former either. For the emotion in the one case is the
converse of that in the other; and voluntary behaviour, just as it provokes
gratitude, so it provokes also anger. For just as we are grateful neither to
inanimate agents nor to those agents that are alive who produce something
without intending to, so neither are we annoyed. And some say that
because of the correspondence, we have a physical impulse to anger as to
gratitude.

The second argument is equally deliberate in its insistence that,
just as the wise man can get drunk, so he can get angry (XLVI. 40–
XLVII. 18). Philodemus' presentation of the third is less didactic, but
once again it seems to turn on analogy: if even the fool gets beside
himself with rage only when he thinks he has suffered great harm,
so will the wise man be angry when he correctly believes himself to
have been harmed—although only briefly, since happenings which
originate outside himself never make much impression on him
(XLVII. 18–41).

The obvious inference is that for Philodemus *logoi epilogistikoi* comes close to meaning 'comparative' or 'analogical arguments', and *epilogismoi* 'comparisons' or 'analogies'. This conclusion is supported by the single occurrence in *On Anger* of the adverb *epilogistikōs*. Philodemus is observing that people who are ill are sometimes unaware of the seriousness of their illness, the afflictions it is causing them, etc., and also the dangers they are in (IV. 10–19):

whether altogether (*katholou*) unaware or *in the way someone who makes a comparative appraisal* is unaware (*epilogistikōs*), which explains why they are rather careless at avoiding complaints [i.e. at taking pre-emptive action], because of the supposition that although present they [sc. such complaints] are only moderate, but once they [sc. such complaints] are put in front of a person's eyes he has second thoughts and prepares for treatment.

Some people are not very careful about sunburn on their Mediterranean holidays. They are aware that itchy blotches on the skin may result, but think that these are relatively insignificant—until they are shown someone dying of fully developed skin cancer. Here the judgement that a condition is only *moderately* serious must be the outcome of (faulty) *comparative* appraisal.

Two texts from Philodemus' *Rhetoric* support diagnosis of comparative connotations in this vocabulary, and at the same time bring us back to one of its central ethical applications, in the hedonistic calculus. First, a passage rebutting the alleged remoteness of philosophy from ordinary views of right and wrong (I. 254. 25 ff.):

Our philosophers say that what is just and good and fine is the same as what the many conceive to be so. They differ from them only in that they grasp them [sc. what is just, etc.] not just on the basis of feeling (*pathetikōs*), but *in the way that someone who makes an appraisal* does (*epilogistikōs*); and in that they are not frequently forgetting them, but are always measuring[7] those which occupy the place of the primary goods against the indifferents. And they do not hold the same opinions as the many about what produces the ends (*telē*)—such as rule, political set-ups, overthrow of peoples, and everything else of that sort.

[7] The words 'but are always measuring' could no longer be read in the papyrus by Sudhaus's day, but were earlier made out by the transcriber of the Oxford apograph (see p. xii of Sudhaus's preface).

In this context the emphasis in *epilogistikōs* is clearly on thought—consideration or appraisal—as opposed to feeling; but its comparative connotation is brought out in the succeeding clause. Second, a text on the apportioning of praise and blame (I. 218. 4 ff.):

> Nevertheless, since nothing is in itself universally (*tois holois*) commendable or blameworthy, but becomes commendable in so far as it conforms to the end of the good, and blameworthy in so far as it conforms to the end of the bad, the person who does not know these things [sc. what is commendable or blameworthy] *on the basis of a comparative appraisal* (*epilelogismenōs*) will not be able to determine things being proposed for commendation by reference to them [sc. what is commendable or blameworthy].

The appraisal in question presumably consists in assessing how much pleasure and how much pain are likely to attach to some course of action. Only then will it be clear what in the particular circumstances is commendable or blameworthy.

Comparative assessment is clearly what is in view in a further passage of Philodemus where *epilogistikōs* is employed (*Lib.*, frag. 28. 1–8):

> and if we show *by a comparative appraisal* (*epilogistikōs*) that although many fine things result from friendship, nothing is so important as having someone with whom one can speak one's heart and to whom one can listen when he speaks his.

Similarly with *dusepilogistos*, 'hard to assess', in this text of Diogenes of Oenoanda (frag. 38: translation after LS 21V):

> It is *difficult* for the many *to assess* the superiority of these mental feelings [sc. over bodily ones]. For it is impossible to experience the extremes of both on a single occasion by way of comparison and contrast (*antiparakrisis*) . . . So no criterion of the superiority of the one over the other has been found. Rather, when someone has bodily pains he says that these are greater than mental ones, but when he has ⟨mental pains he says that they are the greater⟩. For ⟨present things⟩ are always more convincing than absent ones, and each person ⟨evidently⟩ either through necessity or through pleasure assigns the superiority to the feeling which has hold of him. But the wise man works out (*analogizetai*)[8] on the

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[8] As the translation indicates, I do not think *analogizesthai* here carries the connotation of analogy, although as one would by now expect it will presumably involve further *comparisons*; i.e. Diogenes' use of the word is in line with what LSJ s.v. represent as general Greek usage. 'Work out' is, I take it, also what Epicurus

basis of many other considerations this point which the many find *hard to assess*.

This evidence is all from later Epicureans. But a further look at the passage on time in the letter to Herodotus suggests that Philodemus and Diogenes reflect Epicurus' own usage. Recall that Epicurus says (*Ep. Hdt.* 73): 'it needs *appraisal* (*epilogismos*) to see that we associate a certain individual accident with days and nights and their parts, and likewise with the presence and absence of feelings, and motions and rests'. What all these phenomena have in common is duration: if you *compare* such phenomena you become aware of time or duration as the property they have in common.

EPILOGISMOS OF THE END

KΔ 22 bids us '*appraise* (*epilogizesthai*) the end which has been laid down' if in ethics we wish to avoid doubt and confusion. What is this appraisal to consist in? Presumably Epicurus is not here urging us to appreciate *that* pleasure is the end. 'Which has been laid down' suggests that he assumes that we are already familiar with the basic tenets of his ethical system; and if we are right in render-

means (with this same implication of comparison) at *Ep. Men.* 127 and especially at the *beginning* of the passage on time at *Ep. Hdt.* 72: 'We must not inquire into time as we do into the other properties—those which we inquire into in a subject by referring them to preconceptions inspected in our minds. Instead we must *work out* (*analogisteon*) the clear presentation itself [sc. of time], in virtue of which we speak of a long or a short time, bandying the expression [sc. time] around [read περιφέροντες, MSS. and as in LSJ, s.v. I4] in a familiar way.' The relevant 'working out' must be just the everyday comparative assessment (*epilogismos*) spelled out later in the passage (see pp. 222–3 above). David Sedley suggests to me that perhaps there *is* a sharper contrast—here and elsewhere in Epicurean texts—between *epilogizesthai* and *analogizesthai*: *epilogizesthai* is comparison at the same epistemological level, *analogizesthai* comparison involving different levels (notably the apparent and the *adēlon*). In the case of time, Epicurus will be wanting us to *work out the properties* of time *by analogy* (cf. the references to *analogia* at *Ep. Hdt.* 59, Us. 212), e.g. that it is divisible into microscopic portions by comparison with body (cf. *Ep. Hdt.* 46). This suggestion would make Epicurus anticipate the distinction between *epilogismos* and *analogismos* in the empiricist doctors (e.g. Galen, *Sect. Ingred.* 5. 105. 21–106. 18D; *Subf. Emp.* 7. 62. 21 8D). But it seems to me to make for a strained reading of Epicurus' use of *analogizesthai* in general, as well as removing it some distance from common usage. And it detracts from both the unity and the determinedly common-sense cast of the passage on time in particular.

ing *epilogizesthai* as 'appraise', then it is not quite the apt verb to express appreciation or comprehension of what the end is.[9]

A passage of the letter to Menoeceus throws light on what Epicurus does have in mind (*Ep.Men.* 133; text as in LS 20A):

Whom do you consider superior to the man who (1) holds pious beliefs about gods and (2) is at all times free of fear about death, and (3) has *appraised* (*epilelogismenou*) the end ordained by nature, and (4) has distinguished the limit of good things (realizing that it is easy to fulfil and easy to provide) and that of bad things (realizing that they are either brief in duration or slight in discomfort), and (5) would laugh at fate which some have introduced as mistress of all things?

Here the clause (4) 'has distinguished . . .' supplies an explication of (3) 'has *appraised* the end ordained by nature'. The wise person Epicurus is describing appraises the end by considering what is good (pleasure conceived as absence of pain) and what is bad (pain), and by contrasting the accessibility of the former and the relative insignificance of the latter; i.e. he assesses his *chances of attaining the end* by a comparative consideration. Of course, we are not explicitly informed that (4) offers a commentary on (3). But this is the natural interpretation of the sequence of thought, and is confirmed by the fact that in this passage Epicurus is recapitulating the doctrines of his famous *tetrapharmakos* as he does also in KΔ 1– 4: after allusion to the first two items in the quartet in (1) and (2), (3) 'has *appraised* the end' gives a summary account of the third and fourth, before (4) 'has distinguished . . .' spells them out in detail.

I take it that this same idea is what Epicurus is thinking of when he says in KΔ 20: 'The mind, having made its *appraisal* (*epilogismos*) of the end and limit of the flesh, and having dissipated the fears over eternity, supplies the complete life, and we have no additional need of infinite time.' The appraisal in question is surely just that comparative assessment which assures us that the good is easily obtained, the terrifying easily endured (i.e. the third and fourth of the four *pharmaka*). For some such verdict is presup-

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[9] Cf. Sedley (1973: 28), *contra* Arrighetti (1952: 123). Sedley, following De Lacy (1958: 179–80), suggests that Epicurus has in mind here the hedonistic calculus, i.e. *reasoning about how to attain the end* (sc. in particular circumstances). But (1) this would not give a very natural gloss on 'appraise the end'; (2) it doesn't seem general enough; (3) it doesn't exploit what appear to be the texts most relevant to interpretation (for which, see below).

posed by the claim that the mind prescribes the formula for a
complete life. And other sayings in Epicurus or Epicurean
literature which seem to be concerned with 'the limit of the flesh'
focus on the brevity of intense pain and the tolerability of chronic
(KΔ 4, *Sent.Vat.* 4), and on the impossibility of increasing pleasure
once the pain due to want is removed (KΔ 3, 18), as is easily
achieved (KΔ 21: which associates this outcome with a *complete*
life).

EPILOGISMOS AND INFERENCE

The other thing KΔ 22 tells us is that 'we must *appraise* . . . every
clear presentation, to which we refer the opinions we form'. '*Every*
clear presentation (*enargeia*)' already suggests a method of induc-
tion; and from Philodemus' *On Signs* we get an excellent picture of
what Epicureans took this method to require. I need say little in
general about it or about the related 'similarity method' of infer-
ence expounded by Philodemus, since Sedley (1982) and Barnes
(1988) have dealt fully with the material in excellent recent articles.
Nor indeed does much require to be added on the role of
epilogismos in the theory, for Sedley's discussion (1973: 31–2) in his
edition of *On Nature* book 28 makes virtually all the key points
lucidly and succinctly. In particular, Sedley (1973: 31) argues con-
vincingly against De Lacy that *epilogismos* is not itself inference:[10]
first we make an *epilogismos* of the phenomena; we establish
thereby a similarity among them; and then on that basis we infer
(*sēmeiousthai*) to the unapparent; e.g. *Sign.* VIII. 32–IX. 3 (but unfor-

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[10] Cf. Barnes (1988: 130–1). Although the De Lacys (1978: 100 n. 34) continue to
assert that *epilogizesthai* etc. are 'names for empirical inference', they often
translate occurrences in the text of *Sign.* quite differently—and indeed more ap-
propriately. Exceptions are at XXII. 38, XXIII. 5, XXIV. 4, and XXVII. 23. But the first and
fourth of these instances involve taking ὁ τῶν φαινομένων ἐπιλογισμός as 'empirical
inference *from* appearances': which is an unnatural reading of the construction
with the genitive. On the second, see my comment below. In the third case the De
Lacy version might have been right if other instances supported it: but they don't. It
is certainly not dictated by the context. The discussion in Asmis (1984: 204–5)
perhaps leaves some room for doubt about her position. But although she speaks
of ἐπιλογισμός as 'a means of inference', I think she really means 'a basis for
inference', to judge from her assertion *contra* De Lacy that 'ἐπιλογισμός is a calcula-
tion performed on phenomena and does not itself extend beyond them' (p. 205 n.
23).

tunately the text is reconstructed at the crucial point, albeit very plausibly: *ep[ilogi]samenoi*):

Appraising all the features which attend on things that we have experienced in motion, apart from which we see nothing move, on this basis we shall judge that everything whatsoever that moves moves similarly in every case, and by this method [sc. the method of similarity, referred to at VIII. 23, 29] we infer that motion cannot occur without void.

Or again (*Sign.* XXII. 37–XXIII. 7):

As a result of *appraisal* of the appearances I will conclude that the similarity [sc. between men within our experience, and men anywhere] obtains with respect to it [sc. mortality] too. For since this feature is found in the men within our experience, I shall judge that it attends on all men in all circumstances, inferring (*sunbibazōn*) on the basis of *appraisal* (*epilogismōi*) that the similarity must exist in this respect too.

As Barnes observes (1988: 30–1 n. A; cf. Arrighetti 1952: 141–2), without a context *epilogismōi sunbibazōn* might be taken to specify a particular *mode* of inference. In context, *epilogismōi* clearly refers back to the appraisal of the appearances mentioned in the first sentence.

Barnes himself renders *epilogismos* in *On Signs*: as 'survey'. Certainly what Philodemus recommends involves at least a survey—in line with Epicurus' injunction to appraise every clear presentation. But by now we would expect it to connote rather more than survey: critical comparison. The critical function of *epilogismos* is exploited by Philodemus in his attempts to rebut the objection that some inferences apparently sanctioned by the similarity method will not work. It will not do to infer from the fact that where we live there are figs to the conclusion that they exist everywhere (XIII. 8–17) or from the fact that bodies in our experience have colour and are destructible to the conclusion that this is true of atoms (IV. 37–V. 7). Philodemus denies that such inferences *are* sanctioned by his method (XVII. 30–XVIII. 16, De Lacy text):

It is not the case that, if the method of similarity is successful in some cases when we make a methodical study of similarities by *appraisal* as we should, because of that we must also make inferences from any common properties whatever about simply anything. The straight fact is that bodies in our experience are destructible not in so far as they are bodies, but in so far as they partake of a nature opposed to the corporeal and non-resistant.

Similarly, bodies in our experience have colours, but not in so far as they are bodies; for tangible things in so far as they resist the touch are bodies, but in so far as they are tangible they reveal no colour. Objects in the dark have no colour, but are bodies. Therefore from these properties we do not make inferences about all the bodies there are; but we shall not be prevented from making inferences from other similarities by making a move (*metabasis*) on the basis of the similar.

Appraisal evidently does more than identify the similarities which are exhibited by members of a particular class. To judge from this passage, a proper appraisal must establish not merely that all As within our experience are C, but that they are C in virtue of being A, or alternatively in virtue of being not A but B.

The dialectic of *On Signs* makes it clear that this is only one of the subtleties practitioners of the similarity method need to be capable of. Another is summed up in the rule (XII. 1–8) that 'one should not move from *any* common property to *any* common property, but from one which presents no spark in the opposite direction and applies no attraction which pulls against what is evident'. For more the reader is referred to Barnes (1988: 111–30). Although it is not explicitly stated, all must be supposed to fall within the scope of appraisal, *epilogismos* (so Asmis 1984: 206–8).

Philodemus' most general characterization of *epilogismos* as it figures in the theory of inference is given in a remark about '*appraising* the actual similarity and difference in the phenomena' (XIII. 30–2). This comparative technique is amplified elsewhere in the treatise, perhaps most fully in a passage which takes fire as its example. In some of its characteristics fire exhibits variations, in some not (XXIII. 7–XXIV. 1). Philodemus sums up (XXIV. 1–10):

Therefore the person who makes an appropriate *appraisal* will abandon the variations in the phenomena as individual peculiarities, but he will hang on to the characteristics which are common so far as what is apparent goes—as ⟨truly common characteristics⟩[11] without which it is not even possible for things having the nature of fire to be conceived. The same story goes for the other things.

In his very next argument, dealing with an objection to do with unique cases, Philodemus declares that (XXIV. 11–18):

[11] I follow De Lacy (1978: 62) in assuming that the scribe has omitted some words at this point.

The person who makes inferences admirably and correctly notices the common and the individual characteristics in substances and powers and qualities and properties and dispositions and quantities and numbers will make the move (*metabasis*) that one should.

Such observation is surely the hallmark of *epilogismos*.

CONCLUSION

Why was Epicurus so distinctively wedded to the *epilog-* vocabulary? First and foremost, *epilogizesthai* was an expression *not* hitherto appropriated by philosophy, and indeed not employed at all by Plato and Aristotle. (Contrast, for example, *sullogizesthai*, already put to philosophical use by Plato before Aristotle got to work on it.) *Epilogizesthai* was a word in common use connoting the common-or-garden activities of considering and appraising. And these were its attractions to Epicurus: by its use he could convey the message that the main sort of thinking we need in philosophy is a perfectly ordinary kind of activity available to all, not a special intellectual accomplishment restricted to, for example, mathematicians or dialecticians.[12] I think it is this very same feature of *epilogizesthai* which makes it a favourite expression in Sextus Empiricus' vocabulary, although he uses it to mean 'argue' or 'reason' in general, incidentally without any specifically empiricist implications. The point for him is just to avoid, for example, Stoic words for inference, not because they mean 'infer' but because their use might be taken as importing dogmatic assumptions about the nature of inference.

It is indeed an index of Epicurus' success in introducing *epilogizesthai* etc. into philosophical discourse that not only Sextus but the empiricist doctors, too, adopt the expressions as their

[12] Did the prefix *epi-* appeal to him, too? It is tempting to guess that the etymology of *epilogizesthai* suggests reasoning *focused on* some given—whether our own experience, or others' peformances, or whatever. Conceivably Epicurus was sensitive to this dimension of the word: after all, his use of *prosdoxazein*, for example (e.g. *Ep.Hdt.* 50, 62) and *proskatanoēsis* (*Ep.Hdt.* 79) as epistemological terms, not to mention whole batteries of similar compounds in other contexts (cf. e.g. *Ep.Pyth.* 89), suggests a clear awareness of the potentialities of prepositional prefixes. Conceivably, also, Epicurus liked the associated idea that the fundamental form of reasoning is one directed *towards* experience, not away from it. This speculation would of course restore a broadly empiricist tinge to Epicurus' use of the *epilog-* vocabulary. But only broadly; and only rather conjecturally.

own.[13] Like Sextus, the doctors apply it primarily to inference; and they too mean to capitalize on its character as 'the reasoning common to all human beings', as Galen puts it (*Comp. Med.* 150. 13–14D; *On Medical Experience*, ch. 26 *ad fin*). But in their case its use does carry express empiricist commitments: 'the conclusion from the visible to the visible', to quote Galen again (in *Med. Exp.*, ch. 26). This is a development from the Epicurean usage. Where the Epicureans make the *phainomena* a principal sphere of the application of *epilogismos*, the doctors *define* it as *phainomenōn logos*, a type of reasoning relating to the *phainomena* (*Sect.Ingred.* 5, p. 105. 36D). Where Philodemus speaks of the role of *epilogismos* in underpinning inferences by 'similarity' to what we do not but could in principle experience, in the doctors it has become the name of the inference itself. Thus Epicurus' introduction of *epilogizesthai*, *epilogismos*, etc. into philosophical vocabulary opened the way for their exploitation for a specifically empiricist purpose he would no doubt have applauded, even if, as I have argued, he did not anticipate it.

From the material we have examined a distinctive and unexpected contribution to Greek reflection on reason and rationality emerges. We are perhaps inclined to think of Epicureans as wedded to a utilitarian calculus in ethics and to empiricism in science; and these may appear to be quite distinct ways of proceeding, albeit controlled by similar kinds of reference to similar kinds of criteria. As KΔ 22 makes clear, Epicurus in fact envisages application of a single form of reasoning, *epilogismos*, in both the theoretical and the practical sphere. *Epilogismos* is not in itself utilitarian or empiricist. It consists in the familiar and fundamental activity of comparative judgement, which Epicurus is right to introduce and recommend as common intellectual property, not a specialist philosopher's technique. He is evidently conscious of challenging received philosophical wisdom in doing so, and in particular of contradicting the assumption that reason must be deductive. Was he in his own fashion the Wittgenstein of ancient philosophy?[14]

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[13] Sextus' usage is best explored *via* Janacek's index (1962) to the Teubner edition; for the doctors I have used the indexes to Deichgräber (1965) and Frede (1985).

[14] I thank all the symposiasts of the Berlin conference of 25 July 1991, and especially Günther Patzig, for their indulgence, their encouragement, and their suggestions. Jonathan Barnes, Michael Frede, and David Sedley very kindly let me have written comments on a draft version.

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9

Scepticism, Old and New

JULIA ANNAS

There are many important differences between ancient and modern scepticism, and one of the most illuminating, for both sides, is the differing ways in which Ancients and moderns conceive of scepticism about values (moral values in particular). For beliefs about values have a crucial connection with action. It is true that beliefs which are not about values also have implications for action, but beliefs about values provide a special motivation to act. As Sextus Empiricus puts it, 'All people pursue intensely what is believed by them to be good and avoid what is supposed bad.'[1] Beliefs that things, people, and actions are good or bad provide reasons for me to act, and reasons to *care* (to be intense) about the actions of myself and others. If these beliefs are undermined by sceptical argument, what results for the sceptic's motivation to act? It is an important question in ethics, what happens when scepticism undermines what we take to be reasonable beliefs about value and commitments to action on the basis of them.[2]

I have argued elsewhere[3] that ancient sceptics took this point, namely that scepticism about value has practical implications, seriously while modern sceptics about value do not. Sextus, and other ancient sources such as those behind Diogenes Laertius' *Life of*

[1] *Adversus Mathematicos* (*M.*) 11. 113.

[2] The topic of reason and reasonable belief has been central not only to Günther Patzig's work in ancient philosophy, but also to his excellent contributions to moral philosophy, such as *Ethik ohne Metaphysik* (Göttingen, 1971).

[3] 'Doing without Objective Values: Ancient and Modern Strategies' ('DwOV'), in M. Schofield and G. Striker (eds.), *The Norms of Nature* (Cambridge, 1986), 3–29; rev. edn. repr. in S. Everson (ed.), *Ethics*, Companions to Ancient Thought, 4 (Cambridge, forthcoming 1996). Cf. also J. Annas and J. Barnes, *The Modes of Scepticism: Ancient Texts and Modern Interpretations* (Cambridge, 1985), ch. 13, and 'Scepticism about Value', forthcoming in the proceedings of *Scepticism: A Pan-American Dialogue*, University of California Press.

Pyrrho, realized that if you undermine the agent's belief that some-
thing is good, you undermine the motivation to pursue it. (The
sceptic is left with something, of course, and, as we shall see, there
is controversy over just what, and whether it will do the job of the
lost belief.) Modern sceptics about values, on the other hand, do
not recognize this problem, or they exclude it as being based on a
confusion. This is predominantly because they *insulate* their scepti-
cal reasoning and its conclusions from everyday life. Such a sceptic
will deny that there are such things as values, and so regard our
ordinary use of 'good' and 'bad' as based on a mistake; but this
conclusion is insulated from the sceptic's search for the *best* restau-
rant, or indeed the *best* moral theory.[4]

In this regard Hume turns out to acquire tremendous interest.
For in many ways Hume is more like ancient than like modern
sceptics,[5] and particularly in not insulating his sceptical conclusions
from their effects in the agent's life. Some of the most famous
passages in Hume are those in which he asks what the agent is to do
who finds the conclusions of sceptical argument compelling.[6] Yet
Hume's attitude to scepticism about values is also remarkably un-
like Sextus'. In this respect Hume is on the side of the moderns; his
view of what scepticism about values is, and also his view of what
actually happens to the sceptic about values, are radically unlike
what we find in Sextus. And exploring this fact is illuminating about
both ancient and modern scepticism. This rather important differ-
ence between ancient scepticism and the kind or kinds that we find
familiar turns out not just to rest on twentieth-century sceptics'
insulation of their sceptical conclusions from their lives. It turns out
to depend rather on an assumption about value which we find in
Hume as well as in contemporary philosophers. This chapter tries
to locate that assumption.[7]

[4] See 'DwOV', 26–9. The terminology of insulation is taken from Myles
Burnyeat, 'The Sceptic in his Time and Place', in R. Rorty, J. B. Schneewind, and Q.
Skinner (eds.), *Philosophy in History* (Cambridge, 1984), 225–54. See also R. Bett,
'Scepticism as a Way of Life and Scepticism as "Pure Theory"', in P. Hardie *et al.*,
Homo Viator: Essays in Honour of John Bramble (Bristol, 1986), 49–57.

[5] Notably in the fact that he does not regard scepticism as aimed solely or even
predominantly at *knowledge*-claims. He is concerned, as the Ancients were, with the
grounds for holding any of our beliefs.

[6] *Treatise* (*T.*), IV. i. 7, first *Enquiry* (*E.*[1]) XII.

[7] 'DwOV' examines the differences and similarities between ancient and specifi-
cally 20th-century scepticism about values. This chapter expands that investigation
and accordingly revises some of its conclusions about the bases of the differences. In

There are some striking and famous passages where Hume describes the abyss that seems to open up before the sceptic who has followed his conclusions through and accepted their implications; for example, the passage at the end of *Treatise* I: 'When we trace up the human understanding to its first principles, we find it to lead us into such sentiments, as seem to turn into ridicule all our past pains and industry, and to discourage us from future enquiries.'[8] And Hume certainly seems to be making a powerful point. How useless to inquire into causes and effects, for example, if there are insuperable intellectual difficulties with the notions of cause and effect. On the other hand, we cannot stop ourselves from believing that things *do* have causes and effects. We cannot solve the problem just by determining not to think about it.

For, firstly, it is just as natural, and thus pleasant,[9] to us to think about these problems as it is to take our everyday notions for granted; we are rational animals and we find this kind of speculation attractive and compelling, and thus hard to avoid. And secondly, the only motive for *not* thinking about the problems is the fact that we realize that the difficulties are insuperable, and so want to avoid them; but this is a thought available only to the person who has in fact thought about them.[10] So Hume is caught between opposing intellectual pressures, unable to come down on either side, shuttling helplessly between the two:

But what have I here said, that reflections very refin'd and metaphysical have little or no influence upon us? This opinion I can scarce forbear retracting, and condemning from my present feeling and experience. The *intense* view of these manifold contradictions and imperfections in human

the past few years I have been greatly helped by the work of Stephen Everson, Richard Bett, Mark McPherran, and Ezequiel de Olaso on these issues.

[8] *T.* I. iv. 7, ed. L. A. Selby-Bigge, 266. There is a corresponding passage in *E.*[1] XII, in which the Pyrrhonist is described in the third person. I shall not go into the difficult question of the relation of these works.

[9] Cf. esp. *T.* I. iv. 7, ed. Selby-Bigge, 270–1: 'I . . . am naturally *inclin'd* to carry my view into all those subjects, about which I have met with so many disputes . . . I cannot forbear having a curiosity to be acquainted with the principles of moral good and evil . . . I am concern'd for the condition of the learned world . . . I feel an ambition to arise in me of contributing to the instruction of mankind . . . These sentiments spring up naturally in my present disposition; and shou'd I endeavour to banish them, by attaching myself to any other business or diversion, I *feel* I shou'd be a loser in point of pleasure; and this is the origin of my philosophy.'

[10] 'You expresly contradict yourself; since this maxim must be built on the preceding reasoning'; *T.* I. iv. 7, ed. Selby-Bigge, 268.

reason has so wrought upon me, and heated my brain, that I am ready to reject all belief and reasoning, and can look upon no opinion even as more probable or likely than another.[11]

What Hume is here eloquently expressing is the state of finding oneself in what the ancient Pyrrhonian sceptics[12] called *epochē*, suspension of judgement, as a result of finding that one is in a state of *isostheneia*, equipollence—a state where one finds both of one's only two alternatives equally compelling, and has no reason to choose between them. One finds oneself in a state of equipollence either when the arguments on both sides of a question are equally compelling, or when on the one hand one cannot avoid using a concept like those of time, space, or cause, but on the other hand there are compelling arguments to show that these concepts are incoherent, or lead to contradictions, or could not be what we take them to be. A great deal of Sextus' argument is of this latter form, rather like Hume's arguments in *Treatise* I, and it has upon the convinced reader or hearer the same effect: one finds that one cannot retain one's original unreflective commitment to the belief, because of the power of the arguments, but neither can one stay convinced by the arguments, because of the power exerted by the unreflective belief. One thus finds oneself suspending judgement, a position which leads to the intellectual discomfort Hume so rhetorically describes. Suspension of judgement is not, it should be noted, any kind of a conclusion from anything; it is something that happens to you, a state that you find yourself in.[13] Nor is it a state one aims at, or ought to aim at; it cannot be achieved directly, but will happen to you only when you are *in fact* in the state of being equally pulled by two opposing intellectual forces.[14]

[11] *T.* I. iv. 7, ed. Selby-Bigge, 268–9.

[12] I limit myself to the Pyrrhonians, and 'ancient sceptic' in this chapter refers to the Pyrrhonians. There are interesting Academic sceptic arguments about action and belief, but their context is too different for them to be usefully brought in here. Nor do I discuss the relation of Pyrrhonian to Academic sceptical practice.

[13] Cf. Sextus, *Outlines of Pyrrhonism (P.)* I. 7, 8, 10.

[14] Here I must note a disagreement with the excellent articles on Hume by R. Popkin, esp. 'David Hume: His Pyrrhonism and his Critique of Pyrrhonism', *Philosophical Quarterly*, I (1951), 385–407, quoted as repr. in Popkin, *The High Road to Pyrrhonism* (San Diego, 1980), 103–32; and 'David Hume and the Pyrrhonian Controversy', *Review of Metaphysics*, 6 (1952), 65–81, quoted as repr. in Popkin, ibid. Ancient Pyrrhonism, unlike Hume's incorrect version of it, never held that one ought to aim at suspension of judgement (on this see Annas and Barnes, *The Modes of Scepticism*, ch. 3 and pp. 49–50). Rather, we naturally continue to inquire after

What happens to the agent who has ended up in a state of *epochē*? Hume's answer is that our nature in fact does not let us stay in the uncomfortable intellectual position created by our reasonings. We reach this position only when we reason philosophically, but doing *this* is only part, and not a very large part, of what we naturally do. We also dine, play backgammon, etc. So the sceptic does not have to lead a life in which he is torn between the two points of view, the rationally argued and the unreflective, feeling committed to both of them and thus paralysed since he cannot come down on either side. Rather, it is a life in which he feels by turns the force of both points of view, and also realizes something else, namely that *this* state of affairs is itself a natural thing to happen, something that just comes about. This realization has the effect of detaching him from both points of view in a way that removes the conflict, leaving him free to philosophize without worrying about the upshot of accepting his conclusions.

The sceptic is thus distinguished from the dogmatist not by what he believes or does not believe, but rather by the detachment with which he reasons, which springs from his awareness that both our rational inquiry, and the resistance we feel to its conclusions, are part of our nature. As Hume puts it at one point,

It seems evident, that the dispute between the sceptics and the dogmatists is entirely verbal, or at least regards only the degrees of doubt and assurance, which we ought to indulge with regard to all reasoning; And such disputes are commonly at the bottom, verbal, and admit not of any precise determination. No philosophical dogmatist denies, that there are difficulties both with regard to the senses and to all science: and that these difficulties are in a regular, logical method, absolutely insolvable. No sceptic denies, that we lie under an absolute necessity, nothwithstanding these difficulties, of thinking, and believing, and reasoning with regard to all kind of subjects, and even of frequently asserting with confidence and security. The only difference, then, between these sects, if they merit that name, is,

the truth, and if we do this vigorously enough suspension of judgement will happen, but not if we try directly (see *P.* 1. 25–30). Nor did ancient Pyrrhonists accept that suspension of judgement would lead to inactivity, as Hume supposes; this was a familiar ancient criticism, to which they had several replies (cf. *P.* 1. 21–4, and below pp. 246 ff.). Hume's response to scepticism is, I think, analogous in spirit to that of ancient scepticism, when the latter is understood more accurately and sympathetically than Hume understands it. (This point is made in M. Burnyeat, 'Can the Skeptic Live his Skepticism?', in Burnyeat (ed.), *The Skeptical Tradition* (Berkeley and Los Angeles, 1983), 117–48.)

that the sceptic, from habit, caprice or inclination, insists most on the difficulties; the dogmatist, for like reasons, on the necessity.[15]

Hume misunderstands ancient Pyrrhonism. He regards it as a ridiculous and extreme position which if taken seriously would disable one for everyday life. This is a pity, since the actual Pyrrhonist position, which is, very roughly, that one ceases to hold one's beliefs but continues to live by the appearances, is very much in Hume's spirit.[16] However, what matters for present purposes is that Hume does recognize, where the arguments of book I of the *Treatise* are concerned, that when our intuitive beliefs about time, space, and the external world are in fact thoroughly undermined by argument, the result is suspension of judgement; we are caught between opposing intellectual forces and feel the pull of both. This state of suspense produces intellectual discomfort and an inability to commit oneself either way. And there is no intellectual answer to this. But then there need not be one, since we do not *in fact* stay in this state.

What I want to focus on is the point that these passages come at the end of Hume's arguments that undermine our *theoretical* beliefs. When Hume turns to our *practical* beliefs, to our beliefs about values that motivate us to act, his procedure and argument are different, and notably divergent from Sextus' in a way that has more than historical interest.

I should here enter a *caveat*. I am no Hume scholar, and have no overall interpretation of Hume, and no opinion as to whether

[15] A note in *Dialogues concerning Natural Religion*, XII, rightly stressed by Popkin ('David Hume', 131–2). In this passage Hume comes near to the ancient way of distinguishing sceptics as the people aware of the need for further inquiry, while the dogmatists are the ones who are too readily satisfied.

[16] The ancient sceptic loses his commitment to a given belief, but accepts what he believed before, only now as a mere appearance: that is, he accepts the same content, only now with a passive and more detached attitude, rather than active commitment. There are, of course, problems over the scope of appearance here. See Burnyeat, 'Can the Sceptic Live his Scepticism?'; J. Barnes, 'The Beliefs of a Pyrrhonist', *Proceedings of the Cambridge Philological Society*, 29 (1982), 1–29, repr. in *Elenchos*, 4 (1983), 5–43; M. Frede, 'The Skeptic's Beliefs' and 'The Skeptic's Two Kinds of Assent and the Question of the Possibility of Knowledge', in Frede, *Essays in Ancient Philosophy* (Minneapolis, 1987), 179–201 and 201–22 respectively. In spite of problems and complications, however, the ancient appeal to belief and appearance makes it clear how the sceptic is distinguished by his attitude, not by the content of his beliefs or his intellectual aims.

Hume was 'really' a naturalist, a sceptic, or both. My aim here is much more limited. If, I claim, we look at the actual passages where Hume discusses our beliefs about values, we will find a contrast with his attitude to our theoretical beliefs. If we come at this problem from the perspective of ancient scepticism, which makes no such distinction, we may succeed in pinpointing an interesting contrast of attitude about value. No doubt there are larger morals for Hume's work as a whole, but I will not try to draw them here. I am working from what is, in the texts, an undoubted contrast between Hume and Sextus on this score.

Sextus, like ancient sceptics generally, treats beliefs about values in just the same way he treats other beliefs.[17] We think things to be good or bad; but there are, it is alleged, insuperable intellectual difficulties in the notions of goodness and badness, and of values generally; so we find ourselves suspending judgement as to the goodness or badness of things.[18]

With beliefs about value, however, there is a special problem, since they have a direct and powerful connection with action. Sextus expresses this in terms of 'intensity', *suntonia*. 'All people pursue intensely what is believed by them to be good and avoid what is supposed bad.'[19] The idea here is that of intensity, eagerness, concern: to pursue something *suntonōs* is to be concerned about it, to think that it *matters* that you get it. Sextus points out that there is an essential connection between this kind of concern and believing something to have value, rather than merely, say, wanting to have it. And because of this, there is an unavoidable change of attitude if one loses the belief that the thing in question has value. Sextus indeed stresses this point because he thinks that it is this concern about value that makes people unhappy, since concern brings anxiety. People who think money and fame good, for example, are anxious about getting these things, and keeping them when they have got them. Moreover, philosophers who convince us that money, fame, and other external goods are of little or no value compared with that of goods one cannot lose, like virtue, are not removing our concern, merely redirecting it.[20] Indeed, they

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[17] See 'DwOV', 13–17.

[18] The arguments are in *P.* 3. 168–238 and *M.* 11. 1–168.

[19] *M.* 11. 113.

[20] *M.* 11. 112–40.

may be actually *increasing* it, since they have given us reason to find new aims *more* valuable than the old.[21] We do not have to agree with Sextus' claim that concern brings anxiety to agree with his basic point: thinking something valuable elicits a concern over it that is not produced by the mere thought that one is oneself motivated by desire to get it.

This, of course, makes more urgent the question how one will live if and when one is convinced by Sextus' arguments that there are insuperable intellectual problems in thinking things to be good or bad. The 'official' Pyrrhonist answer is, of course, that in the absence of belief one will live by the appearances. But what can living by the appearances amount to, where values and their motivational force are concerned?

Sextus rightly dismisses the idea that the Pyrrhonist will be left paralysed without any motivation, 'denying life and suspending judgement, like some vegetable'.[22] This is a surprisingly common charge against ancient sceptics, but rests on a misconception of ancient Pyrrhonism. The Pyrrhonist is left, not with a total blank, but with the appearances; so he is left with *a* source of motivation, if not with the concern implicit in valuing something.

One might think that loss of concern about value would leave the agent not exactly vegetating but left only with desires for this or that, acting in a way motivated by desire of some kind but unconstrained by the idea of one course of action's being better than another. We can see from one strand of the tradition about Pyrrho that this was seen as a position that sceptics could be forced to.[23] Pyrrho, in one tradition, avoided and cared for nothing—carts,

[21] We may think that in fact philosophy does remove the worry by giving us values to aim at which, once got, cannot be lost, since worry seems to be focused on the getting and keeping of what is found valuable. But this cannot be all, since anxiety attaches equally to what is *bad*, where getting and keeping are not what is in question, and is found as much or more in the bystander as in the agent. Sextus uses as an example a patient being operated on who is too busy standing the pain to worry about its awfulness; the bystander, thinking the pain awful, can be more upset than the patient (*P*. 3. 236; *M*. 11. 159–60). The example also makes Sextus' further point that ceasing to care about things being good or bad does not free you from all negative influences; there are many things like hunger and thirst, and some pleasure and pain, which one can do nothing about. Sextus claims that while one will still suffer from these, the effect will be 'moderate'; just standing the pain is less bad than also thinking it awful.

[22] *M*. 11. 163.

[23] The different kinds of story about Pyrrho are not biography. Pyrrho wrote nothing and his life soon passed into legend. The stories represent views of what

precipices, dogs. (But fortunately his non-sceptical friends went along and saved him from harm's way.) He did what he felt like, quite unconcerned about what others would judge. He washed a pig, and took hens to market. He even (and here we cannot quite reproduce the shock effect) *cleaned the house!*[24] Unhistorical as these stories are, they make a point the sceptic has to meet. Even if losing one's concern for values leaves one with *some* motivation, what will this come to, when unconstrained by notions of what is good and bad? If one loses one's sense of what is better, or right, one's life will become whimsical and eccentric. If Pyrrho could so far forget all sense of what was and was not done as to clean the house, surely this shows that the life of the consistent Pyrrhonist will be shapeless and unpredictable? How can your actions fall into a predictable and meaningful pattern if you have lost all concern for distinctions of value?

Sextus appeals to custom and socialization to do this.[25] The sceptic will act the way he was brought up to act; he will follow the laws and customs of his native land. This kind of response is mirrored in the quite different tradition about Pyrrho: so far from acting eccentrically, he was a model conventional citizen and high priest, honoured by his city.[26] This response on its own, however, will not take us very far.[27] What kind of conformity to custom is meant here? If the sceptic is really detached from his concern with things being good or bad, his conformity to custom would seem to be a *mindless* conformity; he will do what is expected of him quite unreflectively. But no one's life can be entirely unreflective. The sceptic, like everyone else, absorbs his society's customs and conventions, but everyday life demands more than mechanical expression of these, for everyday life faces us constantly with decisions between courses each of which are to some extent endorsed by custom and convention. An absorption of custom so mindless as to be entirely detached from ability to make choices and draw distinctions among the values that custom endorses would seem to be in danger of

a consistent sceptic must be committed to (some of these views, of course, are hostile).

[24] D.L. 9. 62, 66. Only slaves and women did *that*.

[25] *M.* 11. 164 6; *P.* 3. 235, 1. 23–4; cf. also D.L. 9. 108.

[26] D.L. 9. 62, 64. This tradition was endorsed by Aenesidemus, the refounder of Pyrrhonism as a philosophical movement in the 1st century BC.

[27] Cf. 'DwOV', 21–2.

coming adrift as badly as the life of desire unconstrained by values.

What Sextus clearly wants is a life which is detached from any concern about value and yet which is given shape by some critical awareness of value, and is neither whimsical nor mindlessly habitual. The sceptic is to pay attention in some way to distinctions of value, and yet not to have beliefs about values (otherwise he would be concerned and anxious). Can this trick be turned? Sextus argues that it can, in *adversus Mathematicos* 11 (though notably not in *Outlines of Pyrrhonism* 3). Nothing is good or bad 'by nature' or for everyone, he argues. It depends on who you are, what your circumstances are, etc. what is good for you. You will be rid of anxiety and concern about what is good once you realize that what you believe to be good is not good for everyone but only your 'private' good, good 'relatively' to you.[28]

However, even if this point is successful it will not show how one's life would not be shapeless and one's actions whimsical. Pursuing one's very own private good will not give one's life a shape any more than pursuing what one desires, if both are thought of as unconstrained by notions of value that one shares with others. A 'private' value is precisely not a *value*, something that matters in a way that one's own unshared desires do not.[29]

Sextus, then, has difficulties in meeting the problem of how a sceptic can be detached about values without falling into paralysis or eccentricity. But his discussion does at least have the merit of

[28] *M.* 11. 68–78, 118. In the original version of 'DwOV' and in Annas and Barnes, I endorse the view that Sextus is here confusing scepticism with relativism, and that these arguments are a muddle. Since then I have been convinced by the arguments of Mark McPherran that, while Sextus is capable of confusing scepticism and relativism, we need not assume muddle here. See M. McPherran, '*Ataraxia* and *Eudaimonia*: Is the Sceptic really Happy?', in J. J. Cleary and D. Shartin (eds.), *Proceedings of the Boston Area Colloquium in Ancient Philosophy*, v (Lanham, Md., 1989), 135–71, and 'Pyrrhonism and the Arguments against Value', *Philosophical Studies*, 60 (1990), 127–42.

[29] McPherran argues that Sextus is entitled to regard a claim about 'private' good as amounting to no more than a claim about what appears good to the sceptic, since he shares with the opponent, and thus can argue from, the generally accepted view that a real good must be an invariable good. But this still leaves Sextus with the problem of how to avoid the unwelcome alternatives sketched above.

taking two basic points seriously. If you believe something to have value, you do indeed feel a concern about it which you cannot feel if you recognize that the impetus comes merely from you, rather than being a response to something in the object. So if you lose the belief, you experience not just detachment from your previous attitude but a change in attitude, and the question arises, to what extent would the shape of your life change? The question is particularly acute for an ancient Pyrrhonist like Sextus who actually welcomes the change of attitude. But even without sharing Sextus' attitude to concern one can take his point that there will *be* a loss of concern, a change in attitude.

Hume had read Sextus on ethics, at least by the time he wrote the second *Enquiry*, since he there quotes from it.[30] But disappointingly he quotes Sextus only as a source for Stoic moral philosophy and shows no awareness of the sceptical arguments on this issue.

Hume's own treatment of beliefs about value, in the third book of the *Treatise* and the second *Enquiry*, differs strikingly from his approach to our beliefs about time, the external world, and the other topics of *Treatise* I. Hume does not confront our intuitive beliefs about value with arguments that have the effect of undermining them; so we do not find ourselves in a state of equipollence; hence we do not find ourselves in a state of suspension of judgement. So there is no intellectual discomfort, and no reappearance of the vividly described intellectual paralysis that comes to the person convinced by the arguments of *Treatise* I but unable to live with their conclusions. Instead, Hume gives us some rather straightforward arguments about the nature of value judgements.[31] In ancient terms they are not sceptical arguments at all, since they have no tendency to lead to equipollence and suspension of belief. They are negative dogmatist arguments. We think that something is true of value judgements, but this belief of ours, according to

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[30] At the second *Enquiry* (*E.*²) 166n. Hume refers to Sextus 'lib. iii cap. 20'. The quotation occurs at both *P.* 3. 169 and *M.* 11. 22. Since the arguments I have set out occur in *M.* 11 but not at *P.* 3, it would be of interest to determine the reference more exactly. Hume had read *M.* in part at least, since at 142 of *E.*² he refers to it again, for an argument to show the origin of belief in God. In the *Natural History of Religion* Hume twice refers to *M.*, again both times for arguments about God.

[31] *T.* III. i; *E.*², App. i.

Hume's arguments, is false.[32] If Hume is right, we were wrong, and have had an error removed. There is nothing sceptical about either the procedure or the outcome.

Hume's arguments here all depend on the following move: value judgements (particularly moral judgements) move us to action. 'But reason has no such influence. Moral distinctions, therefore, are not the offspring of reason.'[33] Hume's use of 'reason' here is very questionable, and deserves more attention than I can give it here. But one thing is clear, and emphasized by Hume: reason is what discovers and communicates truth (and falsehood), and the denial that moral judgements are derived from reason is among other things a denial that they are true or false in the way that we intuitively take them to be. Reason 'discovers objects as they really stand in nature',[34] and does not discover values that way. Morality is rather a matter of our feelings, guided by means–end reasoning, and if we tend to think that our moral judgements are responses to the way the world is, this is because our feelings have a tendency towards 'gilding or staining all natural objects with the colours, borrowed from internal sentiment'.[35] Or in modern jargon, we have a tendency towards projecting on to an intrinsically value-less world the distinctions that correspond to the ways we feel about things.

Hume's theory has recently been hailed as a prototype of modern 'projectivist' theories of value.[36] Like modern projectivists Hume wants to do two things. He wants to show us that our intuitive acceptance of moral judgements is based on a mistake. Distinctions of value are not there to be discovered independently of us, as we pre-philosophically assume. On the other hand, removing this error is not supposed to erase those distinctions from our point of view. We are supposed to retain them while giving up the belief on which they originally rested. Hume, and the modern projectivists, then give us a substitute for that belief, in terms of a naturalistic theory of human nature which explains both how we

[32] Hume speaks throughout of 'morals', not of values; but this does not affect the points I focus on in this chapter.

[33] *T.* iii. i. 1, ed. Selby-Bigge, 458.

[34] *E.*² 246, ed. Selby-Bigge, 294.

[35] Ibid.

[36] See the work of Simon Blackburn on projectivism about value, esp. 'Error and the Phenomenology of Value', in T. Honderich (ed.), *Morality and Objectivity* (London, 1985), 1–22.

come to have the wrong beliefs we do about our moral judgements, and how we can in fact be motivated to act despite the wrongness of those beliefs. (We have no reason, of course, to accept the substitute, if we do not accept the theory.)

There are two features of Hume's account which I want to focus on. Firstly, Hume sees no problem in our losing the belief about values on which our original motivation to act rested. Intuitively we think that our value judgements are responses to values, that things simply are good or bad. That is what motivates us to go for or to avoid things 'intensely', as Sextus puts it, for it to *matter* to us whether or not we pursue or avoid them. Hume tries to persuade us that our intuitive belief is wrong in a crucial respect: really we are not responding to values but doing something more like taking part in a social creation of values.[37] He never so much as raises the question whether this will make it problematic how values can now motivate us to act. He has entirely missed Sextus' point— that if you give up the belief that things are good or bad, you experience a change of attitude; you cease to feel the relevant concern. Hume sees no opposing force as he does with our beliefs about the external world and causes. There is no argument to equipollence, because Hume sees only one side: the argument that values are not in objects 'as they really stand in nature'. To the other side—that we cannot help going on acting as though they were, just as we cannot help believing in an external world, necessary connection, etc.—he does not even give a hearing. He simply ignores it. Hence we have a straightforward non-sceptical argument which is supposed to remove our error about the nature of values, without affecting our actions, rather than a sceptical argument opposing the belief that motivates us to the arguments that allegedly undermine it.

One is tempted to conclude that Hume has a weaker sense than Sextus has of the reality of values. But perhaps the point would be better put in terms of the motivational force of values. Sextus treats us as beings who are committed to the existence of values, as we conceive of them, in just the way that we are committed to the existence of space, time, and causes. If this commitment is counterbalanced by equal pressure from arguments undermining them, then we can no longer commit ourselves to those beliefs, though we

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[37] Cf. *E.*² 246, ed. Selby-Bigge, 294.

are left with something, namely a detached acquiescence in the appearances. Indeed in the case of values this change from committed to detached state is even more striking than in the other cases, since commitment to values carries a special intensity that commitment to causes, for example, lacks.

Hume simply fails to see the change that Sextus is so insistent on. He seems to think that nothing is lost motivationally if I come to see that values are not discovered in the world but are 'in a manner a new creation'[38] on the part of humans. We can see why Hume might think this, given his own theory about human motivation. For Hume, the motivation to act does not rest on our having a belief about value. Rather, it is the other way round: the belief rests on the motivation. So, as Hume sees it, when he argues that there are really no moral values in the world, this is not a case of one intellectual pressure, that of the arguments, opposed to another intellectual pressure, our commitment to the original belief nevertheless. Rather, we have an argument against a passion; and reason can never, for Hume, *oppose* passions, but must give way to them.[39]

One can, of course, on many grounds fault Hume's theory of motivation. But the main problem here does not rest on its inadequacies. For what is striking is that Hume feels no need to show that he has done justice to our *intuitive* conviction that moral judgements just are true or false, that values really are there in the world and are not created by humans, the conviction that underlies our acting on the basis of values. Sextus does; and the difference between them here is of interest, since it is a disagreement over how people actually think of moral values. Sextus is not putting forward his own view; like all Pyrrhonists he is arguing from the beliefs that others already have. Arguments about value have to be addressed to what most people believe about value; otherwise they will lack point. Hume likewise is allegedly examining *our* views, seeing what we think about causes, values, and so on, and what basis it has. Yet he never deals adequately with our intuitive conviction that there are values, that we do not invent them, and that when we act we respond to them. His conviction that a few arguments will unseat that conviction, but without making any motivational difference, shows that he has not thought the issue through.

[38] Cf. *E.*[2] 246, ed. Selby-Bigge. 294.   [39] Cf. *T.* II. iii. 3.

This is a deep problem in Hume's position. Although his arguments all depend on the practical nature of value judgements, he never seriously addresses the issue of what grounds that practicality in most people's view. It is not surprising that Hume's theory has appealed to twentieth-century moral philosophers who do not respect our intuitive conviction that values are discovered, not created, and who ignore it or consider it easily replaced without affecting our motivation to act.

Hume's position is also independently a strange one. The beliefs that motivate us to action are supposed to be unaffected by our finding, allegedly, that they are not what we took them to be, responses to distinctions of value in the world. Our theoretical beliefs, however, *are* affected by our discovering that there are arguments that find intellectual difficulty in them. In their case we find the classic result that the sceptic claims: opposed intellectual pressures leading to suspension of judgement. And yet, if these beliefs are not all to be treated on a level, as Sextus treats them, one would expect things to be exactly the other way round: it is the beliefs about good and bad that motivate us to action that we would expect to be the more exposed to upset and perceptible loss than our theoretical beliefs, precisely because of the kind of concern that they involve.[40]

Ancient sceptics confront their, and our, beliefs with the arguments that bring intellectual pressure against them. They then watch the result, in us and in themselves: if the pressures are equal, we get suspension of judgement and subsequent detachment from the beliefs. Few if any modern sceptics can accept that the matter could be so straightforward, and various measures are usually adduced in twentieth-century theories to insulate us from the detachment. It is of some interest that Hume, who has no interest in insulation and no such measures to hand, nevertheless removes our value judgements, without argument, from the range

[40] One might have a theory about the world, and human nature, according to which our beliefs about causation etc. are somehow deeper than our beliefs about good and bad, with the consequence that the latter could be more easily uprooted without intellectual fuss. But such a theory would be incompatible with serious scepticism. It certainly is not a datum of experience that the sceptic could claim to be left with as an appearance, after all the arguments are in, that beliefs about value are in fact more shallow-rooted in us than arguments about cause; if anything, the opposite would seem to be the case.

of equipollence and suspension of judgement. The nature of
the assumption about our conception of values on which this rests,
and its origin, would repay study. Here I have merely raised the
issue.[41]

Theories and Practices of Demonstration in Galen

G. E. R. LLOYD

I

In recent years there has been a remarkable resurgence of interest in Galen as logician and philosopher of science. The interest in his contributions to syllogistic, for instance, is, to be sure, a long-standing one.[1] The new interests are in areas that correspond to the subject-matter not of Aristotle's *Prior*, but of his *Posterior Analytics*. To a degree matched, in antiquity, only by Aristotle himself,[2] Galen presents us with material that enables us to investigate not just his theory of scientific method, and not just his practice, but also just how well these two match one another. Of the various complex strands that go to make up that method, I want to focus here particularly on one, the theory and practice—or rather, as I shall argue, the theories and practices—of demonstration. This was a subject dear to Galen's own heart, as seen by the fact that he devoted a fifteen-book treatise to it. It is a subject, too, on which we have an abundance of evidence in the extant medical treatises despite the loss of all but a few paltry fragments of that masterwork. Jonathan Barnes opened the topic up in a masterly, much cited, but for long unpublished paper originally given to the Second International Galen conference at Kiel in 1982, and Jim Hankinson

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[1] Nicholas Rescher devoted a monograph to this subject, *Galen and the Syllogism* (Pittsburgh, 1966). Cf. also his 'New Light from Arabic Sources on Galen and the Fourth Figure of the Syllogism', *Journal of the History of Philosophy*, 3 (1965), 27–41.

[2] Ptolemy offers a third example, though his epistemological treatise, *peri Kritēriou*, is thin and superficial when set beside Aristotle's *Organon* or what we can gather of the contents of Galen's *On Demonstration*.

has successfully explored further certain themes in papers to the
Madrid Galen conference in 1988 and to the Syam conference on
Hellenistic philosophy in 1989. I made some brief comments in my
Sather Lectures in 1984 (published in 1987) and it is these that I
now want to follow up and elaborate.

The topic of demonstration in Galen has both a particular and a
general interest. Galen is probably unique among practising physi-
cians in any age or culture for his professionalism also as a logician:
this goes far beyond mere competence, for he had, as is well known,
important original contributions to make to the subject.[3] Con-
versely he is also remarkable—to put it no more strongly—among
practising logicians for his ability in, and experience of, medical
practice: for of course he also had enormously influential contribu-
tions to make not just to medical theory, but also to such subjects as
anatomy and physiology. Although, as I noted, Aristotle provides
as good an example as any of the combination of interests in the
theory of scientific method and in its actual practice, the distinctive
feature of that combination in Galen is that the practice includes
medicine as well as aspects of what we know as biology.

Galen offers us, therefore, a particularly fine opportunity to test
the fruitfulness or otherwise of the common Greek preoccupation
with demonstration—and there lies the more general interest I
mentioned. Galen is, of course, by no means the only Greek scien-
tist to have both advocated, and attempted to practise, rigorous
demonstration—as was often said *more geometrico*. In that respect,
so far from being exceptional, he is typical at least of one strand or
tradition of ancient Western science. But the very familiarity, to us,
of that tradition should not blind us to its peculiarity or at least its
distinctiveness.

The easiest way to remind ourselves that it *is* distinctive is to
consider other sophisticated traditions of scientific thought that
exhibit no such preoccupation—I mean traditions from other cul-
tures. No one can deny that the ancient Chinese produced some
brilliant science, including, for instance, some very remarkable
mathematics. There what is remarkable is not just the results
achieved but also the methods by which they were obtained. One
instance would be the use of a form of Cavalieri's principle to arrive

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[3] See most recently J. Barnes, 'A Third Kind of Syllogism: Galen and the Logic
of Relations', 1984 Keeling Lecture: 'Uma terceira especie di silogismo', *Analise*, 21
(1985), 35–61.

at the volume of a sphere, work that can be traced through Liu Hui in the mid-third century AD to that of Zu Chongzhi and his son Zu Geng in the fifth.[4] Chinese mathematics still tends to be characterized, even in some specialist discussions, as empirical and/or pragmatic,[5] but that is at best a drastic over-simplification and at points positively misleading, since it ignores its important abstract, theoretical, deductive aspects.[6] However, while there are stretches of sustained deductive reasoning in classical Chinese mathematics, these never proceed from an explicit statement of the relevant indemonstrables, axioms, postulates, and definitions. There is absolutely no sense, in any of the principal extant texts from the first century BC onwards, that anything might be *gained* by the attempt to set out the whole of mathematics, or even a substantial segment of it, in the form of an explicitly axiomatic deductive system in the manner of Euclid.[7] Moreover, if the Chinese were not preoccupied with axiomatic deductive demonstrations in mathematics, *a fortiori* they were not in other areas of science either.

Now the distinctiveness of the ancient Greek preoccupation with demonstration in general and with the axiomatic deductive model of knowledge in particular poses questions over and above those to do with the assessment of the merits or demerits of that preoccupation. Our own Western cultural prejudices may lead us to assume that if other traditions proceed differently, they must be inferior, and the convergence of scientific traditions in modern times, and the dominance of the science that stems from the Western scientific and industrial revolutions, certainly feed that prejudice. But if we compare scientific traditions world-wide in antiquity, in say the fifth and fourth centuries BC, or the second century AD, or—come to

[4] See D. B. Wagner, 'Liu Hui and Tsu Keng-Chih on the Volume of a Sphere', *Chinese Science*, 3 (1978), 59–79.

[5] This is the view still expressed by Joseph Needham in his foreword to Li Yan and Du Shiran, *Chinese Mathematics*, trans. J. N. Crossley and A. W.-C. Lun (Oxford, 1987).

[6] Among important recent work may be cited D. B. Wagner, 'An Early Chinese Derivation of the Volume of a Pyramid: Liu Hui, Third Century AD', *Historia Mathematica*, 6 (1979), 164–88; Lam Lay-Yong and Shen Kangsheng, 'Right-Angled Triangles in Ancient China', *Archive for History of Exact Sciences*, 30 (1984), 87–112; K. Chemla, 'La Pertinence du concept de classification pour l'analyse de textes mathématiques chinois', *Extrême-Orient, Extrême-Occident*, 10 (1988), 61–87.

[7] The reception of Euclid in 17th- and 18th-century China has been studied by J.-C. Martzloff, 'La Compréhension chinoise des méthodes démonstratives euclidiennes au cours du XVIIe siècle et au début du XVIIIe', in *Actes du IIe Colloque International de Sinologie, Chantilly, 16–18 Sept. 1977* (Paris, 1980), 125–41.

that—much later, in, say, the thirteenth century, the picture is very different. The successes and richness of other ancient traditions besides the Greek and Western must give us pause, for they clearly show how scientific inquiries of different types can and did develop in different ways in divergent social, cultural, and intellectual contexts. The task of the historian of ancient science is to try to understand each type against its distinctive background. In this regard Galen provides us with an excellent test-case that can be used not only to throw light on the reasons for that general Greek preoccupation with demonstration, but also to evaluate some of its strengths and weaknesses.

Galen's advocacy of proper scientific method in general and of demonstration in particular, and his insistence on the need for training and practice in logic, are no mere empty rhetorical gestures. It is the voice of experience that speaks, and by that I do not just mean his experience as medical practitioner, but also that in evaluating arguments, theories, and explanations put forward in every one of the many fields of inquiry relevant to medicine. These include, in Galen's view, psychology and ethics as well as such studies as anatomy, physiology, pathology and therapeutics. Of the extant treatises it is especially *de Placitis Hippocratis et Platonis* (*PHP*) and *de Methodo Medendi* (*MM*) that set out, most systematically, his views on demonstration, as well as exemplifying them. But there is scarcely a single treatise, certainly no major one, that does *not*, in one way or another, provide materials for our study.

I am in substantial agreement with Jonathan Barnes and Jim Hankinson on some at least of the great strengths of this feature of Galen's work, and so may begin by setting out briefly four of the most important distinct but overlapping points. First there is Galen's insistence on orderliness in reasoning. His advocacy of demonstration is connected here with a general insistence that to establish a theory or an explanation it is essential to be methodical. He repeatedly voices the complaint, against opponents of different types, that they do not set out their arguments systematically. This leads them into such elementary mistakes as circular reasoning or begging the question. The methodical, proper, 'natural', sequence establishes and makes clear what follows from what.[8]

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[8] Cf. J. Barnes, 'Galen on Logic and Therapy', in F. Kudlien and R. J. Durling (eds.), *Galen's Method of Healing* (Leiden, 1991), 50–102.

Secondly and connectedly, there is Galen's explicit and self-conscious concern to check the validity of inferences. His training in the analysis of arguments is often brought to bear, to excellent effect, to identify missing, or superfluous, premisses, to bring to light ambiguities in their interpretation, and so on.[9] A sequence of reasoning should be clear, coherent, complete, and consequential. He does not himself formalize substantial sequences of his own arguments, or those of others, but—as Barnes and Hankinson have both shown[10]—he sets out many such sequences sufficiently clearly and systematically for them to be readily formalizable. Despite their informal presentation, their logical structure is abundantly clear.

Thirdly, Galen also makes effective use of certain traditional distinctions between different types of premisses (and so of the different types of argument in which they figure). Following Aristotle in the main, his most usual classification distinguishes 'demonstrative' (*apodeiktikon*) or 'scientific' (*epistēmonikon*) premisses from three other types, dialectical, rhetorical, and sophistic.[11] It is true that Galen's terminology fluctuates and indeed, as often, he shows a certain impatience over terminology, suggesting that it does not matter what one *calls* the types provided the right distinctions between them are made. Thus dialectical premisses are also called gymnastic (from the training function they may serve) and topical (from Aristotle's *Topics*). Rhetorical premisses aim merely at the plausible (*pithanon*) and are sometimes labelled such, while under sophistic premisses Galen has in mind chiefly those where there is an intention to deceive.[12] There is, of course, more to an argument being demonstrative than the validity of the reasoning and the truth of the premisses, for the premisses have also to be appropriate, relating to the essence of the subject under consideration[13] and clear, *enargēs*, either to reason or to perception (I shall have more to say on that later).

[9] Diagnoses of errors in his opponents' reasonings are particularly common in *PHP*, as for example at 2. 2. 102. 20 ff., 106. 9 ff.; 2. 5. 142. 30 ff.; 2. 7. 156. 5 ff.; 2. 8. 164. 13 ff.; 3. 2. 176. 16 ff.; 3. 4. 192. 37 ff.; 3. 7. 216. 28 ff., 218. 16 ff.; 4. 1. 238. 14 ff.; and cf. below, nn. 14–15.

[10] Barnes, 'Galen on Logic and Therapy', sects. 9–11, pp. 79 ff.; esp. Hankinson, 'Galen on the Foundations of Science', in J. A. López Férez (ed.), *Galeno: Obra, pensamiento e influencia* (Madrid, 1991), 15–29.

[11] See e.g. *PHP* 2. 3. 110. 16 ff.; 2. 5. 132. 23 ff.; 2. 8. 156. 27 ff.; 3. 1. 168. 14 ff.

[12] See e.g. *PHP* 2. 5. 132. 26 ff.; 2. 8. 158. 1–2; 3. 1. 168. 18 ff.

[13] See esp. *PHP* 2. 3. 108. 26 ff.; 3. 1. 168. 15–16.

The fourth great strength I would identify follows from the other three but deserves separate mention. This concerns the application of logical analysis in *refutation*, to expose the flaws in sequences of arguments generally, of course, those of his opponents. *PHP* again provides excellent examples, particularly in his rebuttal of the Stoic view of the seat of the *hēgēmonikon* where he criticizes their arguments on both formal and substantial grounds. On some occasions his attack focuses on their inconsistency,[14] on others on the ambiguity in their terminology. Thus he claims with regard to an argument of Zeno that his premisses are either merely dialectical (if the ambiguity they exhibit was undetected by Zeno himself) or positively sophistic, if Zeno realized their ambiguity and used it deliberately to deceive.[15] Of course, to show that some particular argument is not demonstrative Galen often proceeds by impugning the truth of the premisses, citing counter-examples or counter-evidence of one kind or another. But alongside substantial criticisms of the contents of arguments there are also many perceptive attacks on their form or structure where Galen's skills in formal analysis are put to effective work.

It is when we turn to the positive and constructive aspects of Galen's programme that it becomes more difficult straightforwardly to endorse his position. Galen himself stresses that there are parts of logic that are useless.[16] However, he is convinced also of its usefulness, not just as a formal training in clear reasoning, and not just to be able to expose the fallacies in your opponents' reasoning, but positively and constructively to provide unassailable demonstrations in anatomy, physiology, pathology, therapeutics, and the rest. What he claims for his scientific method is not only that it is clear, systematic, and methodical, but, precisely, that it provides demonstrations: indeed he also claims that his method enables new truths to be discovered—a point to which we shall be returning. Time and again mathematics, geometry in particular, are invoked not just as the model that medical science should aspire to imitate, but as illustrations of what it actually can and does attain. The truths that the doctor (Galen, at least) sets out are proved in a

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[14] Thus from *PHP* 4 alone one may cite 3. 248. 17; 4. 250. 3 ff., 258. 21–2; 5. 262. 25 ff.; 7. 280. 10 ff., 290. 25 ff.

[15] See *PHP* 2. 5. 132. 5 ff., 23 ff., 136. 36 ff., 142. 8 ff., 144. 29 ff.

[16] This point is made at *PHP* 2. 3. 114. 27 ff., with regard to Stoic interests in logic.

fashion that is directly comparable to the demonstrations of Euclid or Hipparchus.[17]

As an intellectual or theoretical ideal this may appear admirable. Where demonstrative certainty is attainable, it should, no doubt, be pursued with the greatest vigour. However, where it is not, the ambition to pursue it may be, and sometimes is, quite misplaced. Everything turns, therefore, on the question of the extent to which and the manner in which geometrical-style proof *is* appropriate in the fields in which Galen principally worked. My critical comments take two forms. First, I shall identify some of the major obstacles to applying the geometrical model of proof to medicine. But I am also concerned to identify certain positive *dis*advantages in any such attempt and they will constitute my second and, if true, perhaps more damaging criticism of Galen's programme. The first type of criticism suggests merely that the ideal may be *over*-idealistic: the second that it may in certain respects be positively misguided.

We need first to remind ourselves of the principal features of existing, pre-Galenic models of rigorous demonstration. Both the Aristotelian and the Euclidean models of demonstration treat the primary premisses of demonstrations as themselves indemonstrable and offer a classification of their various types: definitions, axioms, and hypotheses in Aristotle, definitions, common opinions, and postulates in Euclid. There is no demonstration, though there may be valid inference, if there are no such premisses. A lower-order demonstration may proceed from premisses established by earlier sequences of argument. But the whole set of deductions depends, in principle, on primary premisses that are, as Aristotle insisted with admirable clarity, themselves indemonstrable (to avoid an infinite regress or circularity) but nevertheless known to be true. Aristotle of course added that these premisses must be necessary, immediate, more familiar (*phusei*) than, prior to, and explanatory of the conclusions. But these conditions generally receive less explicit attention from Galen, at least when he is at work giving demonstrations in the medical treatises.

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[17] See e.g. *PHP* 8. 1. 484. 22 ff.; *Pecc.Dig.* = *CMG* v. 4. 1. 1. 42. 3 ff. Elsewhere both Euclid and Hipparchus are cited for substantive mathematical and astronomical theorems they have demonstrated, e.g. *UP* 10. 13, H 2. 105. 5 ff., K 9. 907. 16, *in Hipp.Prog.* = *CMG* v. 9. 2. 334. 4 ff.

Now Galen specifies that the primary premises are evident, *enargēs*, either to reason or to perception, and the latter category in particular raises a problem that will occupy us in due course, namely whether in addition to the claim that they do not *need* demonstration, Galen holds that they are *incapable* of demonstration—whether the primary premises are indeed *all* (strict) indemonstrables. However, *some* clearly are and we should start with them, the cases that conform to the Aristotelian–Euclidean model.

The nub of the matter, here, is what will count as indemonstrable primary premises in the kind of inquiry that Galen undertakes? There are two main possibilities—(1) definitions and (2) what we may broadly classify as axioms—and I shall consider each in turn. Now, as already remarked, Galen often expresses some impatience over terminological exactitude. He adopts a robust if rather naïve realist position on definitions in particular. It does not matter what words are used to pick out existing kinds—he is often content to say[18]—so long as you pick them out correctly. He has not the slightest doubt that there are natural kinds there to be picked out. The characteristic of demonstrative arguments, as I noted, is that they start from premises that relate to the essence, *ousia*, of the subject in question.

It might look, then, as if Galen could give a broadly Aristotelian account of the role definitions play as indemonstrables. As in Aristotle, so too in Galen, demonstrations and the definitions of essences will certainly be crucially interdependent (though there is no text in Galen that explores their interrelationship in quite the subtle and complex way in which Aristotle does in *Posterior Analytics* 2. 3–10). However, Galen's position runs into difficulties on two counts in particular. First, there is a formal point. It is not reassuring, indeed it is downright alarming, at least from the point of view of the formal presentation of arguments, that he shows himself so tolerant of fluctuations in terminology. Galen justifies *variatio* in, for example, the terms he uses for the parts and powers of the soul, citing Plato as precedent.[19] But he sometimes allows what he calls

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[18] Barnes, 'Galen on Logic and Therapy', sect. 7, pp. 72 ff., cites a number of instances. It is perhaps particularly striking that Galen shows a certain indifference towards exact terminology in relation to the vocabulary of logic itself. Thus at K 9. 401. 18 ff. he implies that it does not matter what one calls the principles (*archai*), whether *lēmmata* or *axiōmata* or *protaseis*.

[19] See *PHP* 5. 7. 344. 4 ff.

his own impatience with *quibbling* to distract him from paying due attention to the necessary standards of formal rigour in the presentation of arguments.

Besides, secondly, there are often substantial points at stake—points of genuine dispute, doubt, and unclarity about the definienda as well as over the definitions to be given of them. It is all very well for Galen to assert that everyone has a clear enough idea about what *nosos*, disease, means, and about what counts as such, or similarly about the sense and reference of the various faculties of the soul, of the various principal internal organs of the body, of the various main groups of animals, and so on. Yet, of course, beyond a very limited point, or when dealing with any but the most elementary terms, there are substantial points at issue and Galen can only have *his ousiai* by dismissing alternative views. Take just one of the examples I have just cited. For the Methodists there are no disease entities corresponding to the various terms commonly used for such in Greek, for example *pleumoniē*, *phrenitis*, and so on (although they continue to use such terms conventionally themselves): there are just three common conditions, *koinotētes*, characterizable as lax or restricted or mixed, according, precisely, to the *general* condition of the particular patient. That implies a concept of disease that is radically different from Galen's. To be sure, he has no patience with Methodists in general, nor with their view of the *koinotētes* in particular. Yet while, when he attacks the Methodists, the controversiality of the issues is fully acknowledged, some of that tends rather to be left out of account when he insists that the essences of things are clear, *enargēs*, in his own constructive demonstrations.

To this a reply that might be offered on Galen's behalf might go like this. In Aristotle, too, or even in Euclid, the definitions are not all self-evident in the sense that they are immediately given or would be taken as such by any ancient biologist or mathematician. Nor are they all universally agreed. Rather, it is only after a good deal of hard work in the substantive inquiry concerned that the definitions *become* self-evident.[20] That point is well taken, but then the line of attack changes, from a focus on the general structural

[20] See Hankinson, 'Galen on the Foundations of Science', 23–4, and 'Galen's Anatomy of the Soul', *Phronesis*, 36 (1991), 197–233: 211. *San. Tu.* 3. 11 = *CMG* v. 4. 2. 99. 14 is one text where Galen explicitly distinguishes between an argument that is merely *ex hupotheseōs*, and one that is demonstrative, *met' apodeixeōs*.

role that definitions have to play for Galen as for others, namely as one of the chief kinds of indemonstrable primary premisses, to one on the degree of the development of the inquiry itself, at least where medicine is concerned.

Although some of Euclid's definitions take a stand on disputed issues, most are quite *uncontroversial*. Although there are variations in the definitions given of odd, even, square, circle, and so on in different Greek mathematical texts, Euclid can and does build on a substantial consensus among mathematicians for which there is no real parallel in medical theory. The controversiality and indeterminacy of the latter were not just a matter of the type of radical attack launched on traditional concepts by the Methodists, but also of the deep-seated disagreements that divided those who worked more or less within the broad framework that those concepts provided. I shall have more to say on that, too, later. Nor can it be said that anatomy and physiology were entirely straightforward either. To be sure, the *identification* of gross structures in the body was largely uncontroversial: there was no mistaking the heart, the liver, the kidneys, the arteries, and so on. Yet even with the most obvious examples, specifying their function—giving their essences—*was* often problematic. We have only to recall the disputes over the contents of the arteries, over the relation between the arterial pulse and the beat of the heart, over the contents of the nerves and of their different types, to appreciate that any claim that in such cases the definitions encapsulating the *ousia* of the structures will *become* self-evident (to wit, after hard work in the substantive inquiry) would be absurdly over-optimistic.

The more appropriate response would be rather to retreat from any claim that these are full-blooded demonstrations on the basis of epistemonic premisses to some more moderate assertion, for example that the arguments are hypothetical or that they are based on dialectical premisses. If hypothetical, the point would be that the arguments are explorations of the consequences of certain presuppositions where the presuppositions themselves do not have the status of self-evident axioms. Alternatively, it might be conceded that the premisses are not epistemonic, but *endoxa*.

Now, on a fair number of occasions Galen does show signs of conceding that his arguments fall short, in one respect or another, of fully fledged demonstrations. Thus at the beginning of *PHP* 6. 3.

372. 16 ff., he recapitulates the demonstrative arguments that he has given of the location of two of the parts of the soul, the head and the heart, and he continues with a disclaimer concerning the structure of the arguments concerning the third, the liver, which cannot be investigated directly, e.g. by ligation, in the same way as the arteries or nerves. We cannot here have a demonstration from the very nature of the subject under consideration, as in the other two cases, but only one that proceeds from certain properties peculiar to it (372. 20 ff.). That is sensible and cautious and shows Galen at his scrupulous best. However, we have to add that while book 8 repeats certain reservations about the status of some of his arguments concerning the liver,[21] by the time we get to book 9 we find Galen omitting any qualification to the general claim to have given epistemonic demonstrations of the locations of all three parts of the soul (600. 3 ff.). If it is characteristic of his scrupulous care on points of logical analysis that he can and does distinguish between the statuses of the premises of his arguments quite explicitly, it is also characteristic of his ambitions to give not just conclusive refutations of his opponents, but also conclusive arguments for his own positions, that he is tempted to overstate, and sometimes does overstate, his claims to have given epistemonic demonstrations.

Definitions setting out essences are important for Galen's demonstrations, but in practice figure less prominently than the other type of indemonstrable, namely what I described broadly as the axioms. He gives a variety of examples of indemonstrable principles that are not definitions. Thus he cites the laws of excluded middle and of non-contradiction as such, and again the equality axiom (one of Euclid's common opinions that had already figured as an axiom specific to mathematics in Aristotle).[22] In the sense that the laws of excluded middle and of non-contradiction provide the conditions of intelligible communication, the medical reasoner too will certainly need them; that is, his reasoning will presuppose them. It is even possible that, as Aristotle already argued, geometry will be relevant to surgery, in that the surgeon may need to invoke

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[21] See *PHP* 8. 1. 486. 13 ff., 488. 34 ff. At 488. 36 ff. Galen explicitly disclaims the status of 'epistemonic' *apodeixis* for some of the considerations adduced in book 6 concerning the liver as the source of the appetitive function and of the veins, while claiming certain arguments for that doctrine to be *apodeixeis* nevertheless (e.g. 486. 30, 488. 34).

[22] e.g. *MM* K 10. 34. 12 ff., 36. 15 ff.

geometrical properties to arrive at the correct explanations concerning the fast or slow healing capacities of wounds or lesions of different shapes.[23]

However, neither geometrical axioms, nor general principles such as the laws of excluded middle and non-contradiction, will get the *doctor* very far. Nor does Galen settle for such. The problem arises, however, of how far he can justify claims for the axiomatic status of the *other* principles he needs. Among the most prominent examples are (1) that nothing occurs without a cause, (2) that nature does nothing in vain, and (3) that opposites are cures for opposites; and given their importance for his whole enterprise, it is worth looking briefly at all three.

As Galen duly recognized, none of these principles, not even the first, was undisputed in antiquity. He was well aware that the Epicurean swerve consisted, precisely, in postulating the existence of an event for which there is no cause. Nor were they the only theorists—on Galen's own account—who spoke of uncaused motions, since he claims that, driven by the inadequacies of their own psychological theory, certain Stoics also did—though that, of course, was a sure sign, in his view, that their theory was in deep trouble.[24] However, he can and does claim,[25] with some justification, that *most* philosophers accepted the principle, though it has also to be said that quite *what* they were accepting, when they accepted it, is to this extent unclear or indeterminate in so far as the analysis that different theorists gave of *causes* varied. Just as much, the *denial* of the principle turned too on what counts as a cause.

With the second principle, (2), that nature does nothing in vain, the same two problems recur in severer form, namely the denial of the principle, and a certain unclarity concerning what precisely was being claimed by those who asserted it. Those who denied it, Atomists and anti-teleologists in general, could and did go into the attack, claiming that the appeal to final causes in the explanation of natural phenomena was not only unnecessary but deeply mis-

[23] Aristotle, *APo.* 79ᵃ14.

[24] See *PHP* 4. 5. 258. 26 ff., 31 ff.

[25] *PHP* 4. 4. 258. 13 ff. (almost all); 6. 5. 392. 22 ff. (where the doctrine is said to be agreed by 'all', without any qualifying *schedon*); cf. *MM* 1. 7. 10. 50. 1 ff.

guided. Like Aristotle, Galen sees the need to defend the principle, if not by arguing for it, at least by *exhibiting* it.[26] The whole of *de Usu Partium* is, of course, just such an exhibition. Yet the principle that Galen defends is not quite the one that Aristotle does. In Aristotle the dictum corresponds to a *generalization*, and he explicitly allows exceptions, cases where no final cause is to be assigned, including cases relating to the parts of animals.[27] In some of Galen's formulations, by contrast, the principle is stated as if it were an exceptionless one. But then, of course, he has, whether he acknowledges it or not, far greater difficulty in maintaining it. As I tried to show in *The Revolutions of Wisdom*[28] he is in particular difficulty in relation to diseases, where some of the products of nature (the humours and other residues) get out of control. Against the letter (at least) of some of his unqualified statements, here are cases where there are imperfections or inconveniences in nature's handiwork, judged from the standpoint of the living organism as a whole.

True, it might be argued that all that Galen needs is general agreement to the relevance of final causes to the explanation of natural phenomena, and that one can justify the claim that that principle cannot itself be made the subject of a (non-circular) demonstration and must therefore be treated as a principle that anyone attempting to engage in anatomical or physiological inquiry has to accept. In that sense, indeed, it may be deemed some kind of regulatory principle of those inquiries. However, it must be recognized that that defence *waters down* Galen's own stated positions, both as regards what he claims in his unqualified statements that nature does *nothing* in vain, and as regards the status of the principle when he treats it as an axiom on all fours with, for example, the equality axiom in mathematics. The crucial difference between the two cases lies in the degree to which the 'axiom' in question is problematic in scope and interpretation.

The problems with the chief axiom of therapeutics, (3), are even

[26] However, *de Naturalibus Facultatibus* 3. 1, H 3. 205. 21 ff. is one text that speaks of the doctrine that nature is craftsmanlike and caring as not just 'laid down' (*hupokeimenou*) but as having previously been 'demonstrated' (*proapodedeigmenou*, 206. 1).

[27] See e.g. Aristotle, *PA* 662^{b}23 ff., 663^{b}22 ff., 677^{a}11 ff. on bile.

[28] *The Revolutions of Wisdom* (Berkeley, 1987), 324 ff.

more severe. When 'opposites' are said to be 'cures' for 'opposites',
how is that to be understood? One tactic would be to transform
that into an analytic truth by taking it that 'opposites' here are by
definition those things that are 'cures' for each other. But that is not
generally the way that Galen proceeds, and it robs the principle of
the very content that it was supposed to be able to provide. But
unless what is to count as 'opposites' is very heavily glossed and
qualified, the problem will be not just that the principle is unclear,
but that it is untrue. There were, in this case, of course, Hippocratic
precedents for an appeal to some such general principle. Galen
repeatedly cites the principle we find exemplified in *On Breaths*,
when it remarks that 'depletion' and 'repletion' counteract one
another[29]—not that in that or any other Hippocratic work the
principle is elevated into a self-evident axiom. But if the principle
gains a certain plausibility from its applicability to such a straight-
forward case as hunger being counteracted by eating, or thirst by
drinking, just how far it applies as a *general* principle does not
thereby cease to be problematic to the highest degree. The hot,
Greek doctors were fond of claiming, is to be counteracted with the
cold, and vice versa, and so on and so forth with a whole range of
opposite qualities or substances analysable in terms of such quali-
ties. Yet as is abundantly clear from Aristotle, and as Galen contin-
ues to recognize, just what is to count as hot and what as cold is
notoriously unclear and disputed, and so too, therefore, the man-
ner in which the desired counteraction is to be brought about. What
is cold to the touch may nevertheless be hot, Galen tells us follow-
ing good Aristotelian precedents.[30] One must distinguish, too, be-
tween the potentially or accidentally hot and the essentially or
actually hot. And to these Aristotelian distinctions Galen adds his
own theory of the different degrees of heat and cold, thereby

[29] The principle that opposites are cures for opposites is often ascribed to
Hippocrates without specification of a particular text or treatise in which it is to be
found, see e.g. *San.Tu.* 1. 7 = *CMG* v. 4. 2, 17. 1 ff.; cf. *San.Tu.* 5. 2. 159. 26 ff.; *MM*
11. 9, K. 10. 761. 8 ff.; *PHP* 8. 6 = *CMG* v. 4. 1. 2. 516. 18 ff. The doctrine is discussed
at some length in connection with *Nat.Hom.*, e.g. *in Nat.Hom.* 5. 9. 1. 58. 16 ff., but
Galen also claims to find the general principle expressed, for example, in *Epid.* and
Aph., *San.Tu.* 5. 11. 163. 10. Cf. also K 1. 261. 3 ff. = *CMG* v. 9. 1. 135. 23, v. 10. 1. 52.
2, v. 10. 2. 2. 275. 4, 276. 1 ff.
[30] See e.g. *Ars Medica* K 1. 381. 12 ff.; *El.Sec.Hipp.* 1. 8, K 1. 476. 10 ff.; *Mixt.* 1. 6,
H 19. 10 ff.; 1. 9. 32. 5 ff., 33. 21 ff.; 2. 2. 51. 18 ff., 53. 14 ff.; 2. 3. 56. 12 ff.

making more complex the analysis to be given, especially in relation to the effects of drugs in treatment.[31]

It is not as if the principle lacks all plausibility and cannot be defended at all. But certainly defence is necessary to save it even as a broad generalization of medical practice. The problem is of a different order of magnitude when it comes to justifying its status as an *axiom*. It would be one thing to suggest, as a heuristic principle for medical practice, that the doctor should consider the possibilities of bringing opposites to bear to counteract opposites, even though as noted the interpretation of any given pair of opposites remains difficult and as a heuristic principle it will focus attention on qualities rather than on substances or processes. However, we must be clear that Galen wants far more: its status, in his system, as an axiom precisely permits him to justify the claim to *deduce* and to *demonstrate* certain conclusions.

The top-level principles that have to do the work of indemonstrable primary premisses in Galen's medicine and biology are subject to more or less damaging objections. Definitions can serve his purposes up to a point, but he often shows himself impatient concerning their exact form. The non-definitional axioms are either vacuous or highly problematic. The ones that have most relevance to medicine are all to a greater or lesser degree controversial, all unclear and in need of considerable interpretation. So far from being self-evident, their truth is highly questionable.

To these criticisms we might again attempt a Galenic counter. Maybe *primary* indemonstrable premisses are difficult to come by in medicine, and maybe therefore the whole of medicine cannot be set out, in Euclidean fashion, in a single axiomatic deductive system. Those points might be conceded. But—the defence might go—for particular stretches of reasoning clear starting-points can be suggested that will serve as the scientific premisses for adequate and secure demonstrations. Such premisses may be evident, *enargēs*, either to reason or to perception, as Galen often explains: but in either event they will do.

That is an excellent defence as far as it goes. The trouble is that it does not go far enough: that is, it hardly does the job of work that

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[31] See e.g. K 11. 561. 3 ff., 571. 9 ff., 15 ff., 739. 12 ff., 786. 11 ff.; K 12. 104. 18 ff., 126. 9 ff., 16–17, 129. 15 ff., 132. 3 ff. See esp. G. Harig, *Bestimmung der Intensität im medizinischen System Galens* (Berlin, 1974).

Galen needs to justify the application of the geometrical model to medical reasoning. To put the point in the baldest and most general terms, it offers some defence of *deductive* reasoning (which, however, needs no defence), but not of *axiomatic-deductive* demonstration.

We must return to the problem I mentioned but left in abeyance, that of whether the primary premisses of Galen's demonstrations are believed to be not just *in need of no* demonstration, but also *all in*demonstrable. Aristotle insists as much, as I reminded you, to avoid an infinite regress—or circularity, and Galen agrees that circular proof is no proof.[32] However, as Barnes has remarked,[33] Galen sometimes writes as if some of his principles *can be* demonstrated. There are, of course, no problems with the idea that lower-level conclusions are shown from premisses that are themselves the conclusions of prior demonstrations. Then those premisses are not the primary ones. But in some texts it appears that premisses that are *enargēs* are nevertheless said to be demonstrable.

One such case is *Nat.Fac.* 2. 8, H 3. 186. 2 ff., where after his customary disclaimer that he will not repeat what has already been finely demonstrated by the Ancients, he proceeds by remarking that he *will* discover and prove certain points that they stated without demonstration as being *enargēs*—since they did not suspect that there would be sophists so degraded as to condemn the truth in such matters, so shameless—as he later puts it, 3. 10. 230. 13 ff.—as to contradict what is evident. The matters in question relate to, or include, such topics as the origins of the humours and the role of various faculties. Here the Ancients are represented as having taken certain points as evident—and indeed they *are* so. But that does not, in this case it seems, rule out their being supported by Galen and even demonstrated.

Yet if Galen is committed to the position that certain principles may not need proof, but are capable of it, the first obvious difficulty is the one that Aristotle already identified. Demonstrations start from primary premisses that are themselves indemonstrable—on

[32] See e.g. *Mixt.* 2. 2, H 49. 11 ff.

[33] Barnes, 'Galen on Logic and Therapy', 70 n. 65, where the main example adduced relates to the passage in *Nat.Fac.* 2. 8 discussed in my text. Barnes remarks that *if* Galen is indeed committed to the belief that what is evident does not require proof but may be capable of proof, there are difficulties with such a view.

pain of an infinite regress. In so far as certain premisses used in lower-level demonstrations are themselves capable of proof, then they are not primary in the sense of the ultimate axioms. Hankinson's comments on the problem adopt a different tack from Barnes's. Accepting the Aristotelian principle that axioms must indeed be indemonstrable, Hankinson argues that the key to the understanding of Galen's position lies in the indeterminacy of the notion of principles.[34] There are, Hankinson reminds us, premisses that are clearer to us, and others clearer in nature. Galen moves from the one to the other, and the former can—*phusei*—be proved from the latter.

No doubt on occasion that is an appropriate way of describing Galen's underlying thought. Yet in some problematic cases difficulties remain. Thus in *Nat.Fac.* the procedures he adopts to recommend what is *enargēs* appear to include not just appeal to the role of the warm in digestion, but also to the findings of his own experimental vivisections, for it is these that provide him with his main arguments to establish, for example, the attractive and alterative faculties of the stomach.[35] In this case, at least, it is hard to see his move as being back to principles that are all 'naturally' *more* self-evident than those he recommends on their basis. On a number of occasions, indeed, Galen is explicit that the premisses of his epistemonic proofs are themselves supplied by 'anatomy', that is usually by dissection.[36] In such cases there is no question of those premisses being themselves *self*-evident: but then no more can the findings of dissections be said to be, or even to become, self-evident either, for they represent the work of tough and often problematic empirical research. There can be no doubt about Galen's keenness to represent the primary premisses in medical reasoning as as

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[34] Hankinson, 'Galen on the Foundations of Science', 24; 'Galen's Anatomy of the Soul', 206–7, 228.

[35] *Nat.Fac.* 3. 7 and 8, H 3. 217. 10 ff., 222. 19 ff., esp. 227. 19 ff. (note *epideixōmen*, 228. 1 f.). Although the immediate point at issue is the alterative and retentive functions of the stomach, the argument is directed at refuting the Erasistrateans' position more generally, which Galen represents as a refusal to recognize the works of nature, 227. 25 ff. It is clear that the underlying dispute is to do with the validity and interpretation of the principle that nature does nothing in vain.

[36] See e.g. *AA* 8. 2, K 2. 660. 9 ff.; *UP* 14. 7, H 2. 305. 2 ff.; *PHP* 2. 3. 110. 5 ff., K 4. 414. 1 ff., 677. 2.

reliable as those of geometry.[37] But with some of those claimed as 'evident to perception' there is a problem—indeed whether we take the Barnes line that some of the primary premisses are themselves capable of being demonstrated (even though they do not need to be) or the Hankinson one that where we find such premisses being demonstrated they are not the primary 'phusei' ones. The problem remains since on either story the eventual primary premisses in question seem to include some for which it is extremely implausible to claim the status of self-evident truths.

None of this impinges on claims that may be made concerning the *deductive* structure of Galen's arguments. The problems arise with the further claim to model medical arguments on axiomatic geometry in the manner of Euclid. Galen was rightly impressed by the mathematical sciences, and his ambition to model anatomy, physiology, pathology, and therapeutics as far as possible on them has the undeniably positive features that I mentioned at the outset: his insistence on order, concern with validity, care over the logical status of different types of premisses, and so on. His actual arguments on particular problems are often impressive—not just impressively clear, but impressively cogent deductive reasoning from premisses that were often carefully secured by painstaking empirical investigation and acute conceptual analysis. If that had been where he had stopped in his pursuit of the ideals presented by geometry, all—one might have said—would have been well and good. But proof *more geometrico* meant, and meant for him, the whole axiomatic-deductive structure of such a text as Euclid's *Elements*, starting from its definitions, common opinions, and postulates, and aiming to establish all the theorems that can be established in geometry on their basis. Galen's top-level medical and biological indemonstrables are generally quite inadequate for *that* task, and often run the risks of being either vacuous or highly controversial as well as unclear. His lower-level premisses are often secured by good empirical methods. But that does not make them axioms. So far from being *indemonstrables* Galen does an excellent

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[37] Geometry is held up as a model *epistēmē*, and comparisons are drawn between medical–biological and geometrical reasonings, on many occasions. See e.g. *MM* 1. 4, K 10. 30. 10 ff., 33. 18 ff.; *PHP* 7. 5. 460. 24 ff.; 8. 1. 484. 13 ff., 26 ff., 486. 10 ff.; *UP* 10. 13, H 2. 104. 24 ff., 105. 10 ff.; 10. 14. 110. 9 ff. = *CMG* v. 4. 1. 1. 28. 20 ff., 42. 2 ff., 68. 3, *CMG* v. 9. 1. 53. 30, K 4. 695. 7 ff.

job of work *demonstrating* some of them, using the appropriate empirical methods, for example what we still rightly call *anatomical* demonstrations, exhibiting, in dissections, the structure and function of the parts in question.

II

Why, then, we may ask—to return to some of the more general issues that I said this topic raises—why did Galen pursue that geometrical method beyond the point where it supplied good models of deductive rigour and of the methodical presentation of sequences of arguments? At one level it is the prestige of mathematics that motivates Galen to imitate it as far as possible (and maybe further than is appropriate) in anatomy, physiology, and pathology. But we can be more precise. It is particularly because mathematics provides the best examples of *incontrovertible* conclusions that it attracted imitators from other disciplines, including from medicine.

The background to Galen's use of the geometrical method is provided by the intense competitiveness and contentiousness that had been a feature of Greek medical debate since the days of the Hippocratic writers and to which Galen repeatedly testifies in his own treatises.[38] Others, his rivals, are often accused of being argumentative for its own sake, if not also of sophistic quibbling, if not also of arrogance in their unsubstantiated claims to have the truth.[39] As I noted, Galen found his skills in logical analysis very useful indeed in refuting his opponents. But positively and constructively he had to justify his own not unarrogant claims to have got the answers right.[40] He uses several tactics in that justification, some-

[38] I have discussed aspects of this in 'Galen on Hellenistics and Hippocrateans', a paper presented to the fourth Symposium Galenicum, Berlin, Aug. 1989, in *Methods and Problems in Greek Science* (Cambridge, 1991).

[39] See e.g. *MM* 1. 3 and 4, K 10. 20. 9, 29. 13 ff., 32. 9, and cf. my 'Galen on Hellenistics and Hippocrateans', nn. 8 and 55.

[40] Cf. above, pp. 264-5, on the claims made in *PHP* to have given scientific demonstrations of the functions and locations of the faculties of the soul. The variety of theories for which he elsewhere claims to have given proofs is very great indeed. These include, for instance, the doctrine that the hollows of the brain are full of psychic pneuma (see *Us.Puls.* 2, K 5. 154. 13 ff.), his views on the functions of the nerve and artery serving the liver (*UP* 4. 12, H 1. 220. 9 ff.), his theory that a residue

times claiming that he was just following Hippocrates, or Plato, or the Ancients, or the best of them, generally. But one weapon in his armoury is the argument that *his* truth comes with the guarantee of incontrovertibility provided by geometrical-style proof.[41] To be fair, he often acknowledges the uncertainties of medicine, particularly of therapeutics. He is far from claiming that medicine as a whole is an exact science.[42] Yet he *does* repeatedly claim that parts of it can be made the subject of rigorous geometrical-style demonstrations.

Greek medicine, my argument is, exhibits to a particularly marked degree the competitiveness that characterizes most areas of Greek speculative thought, including, indeed, aspects of mathematics and the exact sciences themselves. One can see just how distinctive the rivalry expressed by some Greek writers is by referring, once again, to other traditions, though I shall not pursue that further here. It is not as if that competitiveness and the contentiousness that went with it were always and everywhere negative in their effects. On the contrary they evidently had important positive features. One positive spin-off was the intense focus on the conditions that had to be fulfilled for a claim to rigorous demonstration to be sustained. Formal logic, to be sure, is a discipline in its own right. But we should not underestimate the extent to which, in the early days, in Plato and Aristotle, *their* concern with *apodeixis* was to secure the contrast between proof and (mere) persuasion, or between philosophical proof and the rhetorical variety. However, the negative features of that Greek contentiousness include the frequent excessive claims made, in various disciplines, to have given incontrovertible proof where such claims degenerate into mere rhetorical bravura.

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has to be formed in the stomach and intestine (*UP* 5. 4, H 1. 258. 26 ff.), his doctrine that the origin of the motion of the lung is in the thorax (*UP* 6. 2, H 1. 300. 16 ff.), his theory that material cannot penetrate a body more than a certain distance unless a broad passageway exists for its conveyance (*UP* 6. 17, H 1. 363. 21 ff.), and many other more or less distinctly formulated physiological, anatomical, and pathological views.

[41] See e.g. *Pecc.Dig.* 1 = *CMG* v. 4. 1. 1. 43. 3 ff. Some such point is often in mind in his comparisons between his medical–biological arguments and geometrical reasoning, see above, n. 37.

[42] See e.g. *Mixt.* 2. 4, H 62. 25 ff., K 11. 151. 17 ff., 171. 4 ff. The theme that medicine is not an exact science, but a stochastic art, is, of course, common in a number of earlier medical writers (cf. Lloyd, *The Revolutions of Wisdom*, ch. 3, pp. 128 ff., 162 ff.).

Galen is altogether too sophisticated and crafty a writer to accuse of *mere* rhetorical bravura, though there is (I argued) some rhetorical exaggeration in some of his claims to have given scientific proofs. But let me take one final example to illustrate the pitfalls of the ambition to recast as much of medicine as possible in the mould of axiomatic deductive geometry, an example where Galen is at close quarters with the opposition and so one that further illustrates the rivalry I have mentioned. Here, it may be, we have a case of being not just over-idealistic, but positively misguided.

Galen insists against his opponents among the Empiricists and the Methodists especially that their theories cannot cope with *new* diseases.[43] Of course Galen's complaints against the Methodists go far further than that, for he considers that the notion of general conditions provides a hopeless framework for medical diagnosis and treatment in general. But the Empiricists, too, attract his criticisms in so far as they had (in his opinion) no firm theoretical foundations to serve as the basis for the explanation and treatment of new or unfamiliar diseases. In fact, however, the Empiricists proceeded, as they usually did, by comparing like with like, a procedure that incorporated the recommendation to try out therapies that had proved efficacious in the past in what appeared to be similar cases.[44]

Galen's own claims were that he could do far better, precisely by being able to deduce new therapies on the basis, and within the framework, of his axiomatic deductive system. His procedures were not just more methodical: they yielded conclusions that could, on occasion, be considered certain. But what were the realities of the situation? When either Galen or an Empiricist was faced with the problem of diagnosing and treating a strange condition, how did they each proceed? Galen claimed his method was systematic and could give far more secure results. True, if the new condition could indeed be brought under a general rule or be considered a species of a wider genus that was already familiar, Galen's claims could be sustained at least in that the new condition could be brought within the ambit of existing medical theory. But everything

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[43] See e.g. *Sect.Intr.* 5, H 3. 9. 4 ff., *Med.Exp.* 3 ff., Walzer 87 ff., 89 ff.
[44] See e.g. Celsus, *De Medicina* 1, Proem 36 ff.; *CML* 1. 23. 4 ff.; and cf. Galen, *Sect.Intr.* 2. H 3. 2. 12 ff., *Subf.Emp.*, chs. 4 and 9. 49. 23 ff. and 69. 33 ff.

depended, of course, on being able to subsume the new condition under a wider class. *Both* Galen *and* the Empiricists had to exercise their judgement in that respect, weighing up the similarities and considering the differences both between types and between individual tokens. The Empiricist *metabasis tou homoiou* and what Galen's own procedures depended on have more in common than Galen's rhetoric allowed, and when the two styles differed Galen's was not necessarily in all respects superior.

Where the Empiricists had every reason to be tentative and to adjust their decisions on diagnosis and treatment in the light of the experience they accumulated, including directly from treating the new condition itself, the *dangers* of Galen's approach, more systematic though it was, lay in the very *certainty* that was claimed as its chief advantage—since once the subsumption had been effected, there was no reason for the Galenist to doubt the results that followed. In genuinely problematic cases Galenic deductive structures carried the risk of *premature dogmatism*, where the more tentative Empiricist had no such temptation to consider that they had certain answers to the new problems that presented themselves. There is no doubt that *if* Galen's claims for his method could have been sustained, they would have had advantages over those of his main opponents. There is no doubt that that is (at least in part) *why* the claims were made, for the force of the *claims* can be appreciated by someone with no medical knowledge at all. But the problems arise just in sustaining those claims, where it appears, rather, that we have a further instance of over-optimistic assimilation of medicine to the purely deductive style of mathematical reasoning.

III

We are faced, we may conclude, with some paradoxes. Galen was a first-rate logician and a first-rate empirical biologist. But the one set of talents was not unqualifiedly and unrestrictedly advantageous to the other. It was not, of course, that *logic* got in the way of his medicine. But the ideal of geometrical proof that he set himself had its inappropriatenesses, in medicine, as well as its strengths. That is the first paradox. And the second is that where so much of the *talk* of demonstration, in Galen, pursues, or rather strains after,

that ideal, he was a past master of the actual style of empirical demonstration that is most appropriate to much of his subject-matter, at least in anatomy and physiology, namely that based on anatomical dissection. How better to demonstrate the role of the recurrent laryngeal nerve than first to expose and ligate it and then observe the consequences? How better to demonstrate the function of the valves of the heart than to follow the procedures that Galen lays down in *de Anatomicis Administrationibus*? The results of such empirical anatomical investigations were as clearly *demonstrated* as anyone could wish. It was important, no doubt, then to pursue what could be deduced on their basis. But thereafter to seek to recast his empirical investigations in the geometrical mould, with the deductions stemming from starting-points for which axiomatic indemonstrable status is claimed, was at least distracting (since it ignored their empirical basis) and at worst misleading (since it gave the whole a spurious air of incontrovertibility).

Ammonius on Future Contingent Propositions

MARIO MIGNUCCI

I

Aristotle's *De interpretatione* chapter 9 is a crucial text well known to scholars, and I would not like to be trapped in a discussion of its complexities.[1] My aim is more modest and commensurate with my capacities: to consider, on its own, Ammonius' solution to the problem of future contingent propositions, without feeling committed to evaluate his view as an interpretation of Aristotle.

The problems raised by future contingent propositions are many and some of them have to do with the question of determinism. If it is now true that a sea-battle will take place tomorrow, it cannot be the case that the sea-battle does not occur tomorrow, otherwise it would not be true today that there will be a sea-battle tomorrow. That there will be a sea-battle tomorrow has for ever been fixed and determined. The future in this way appears to be un-preventable and necessary. Therefore, the question can be asked

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[1] The bibliography up to 1973 can be found in V. Celluprica, *Il capitolo 9 del 'de Interpretatione' di Aristotele: Rassegna di studi 1930–1973* (Bologna, 1977). Further bibliographical references are available in D. Frede, 'The Sea-Battle Reconsidered: A Defence of the Traditional Interpretation', *Oxford Studies in Ancient Philosophy*, 3 (1985), 84–7 and J. Talanga, *Zukunftsurteile und Fatum: Eine Untersuchung über Aristoteles' 'de Interpretatione' 9 und Ciceros 'de Fato' mit einem Überblick über die spätantiken Heimarmene-Lehre* (Bonn, 1986), 169–85. Add to them the important paper of C. Kirwan, 'Aristotle on the Necessity of the Present', *Oxford Studies in Ancient Philosophy*, 4 (1986), 167–87; J. van Eck, 'Another Interpretation of Aristotle's *de Interpretatione* IX: A Support for the So-called Second Oldest or "Mediaeval" Interpretation', *Vivarium*, 26 (1988), 19–38; P. L. Donini, *Ethos: Aristotele e il determinismo* (Alexandria, 1989); J. van Rijen, *Aspects of Aristotle's Modal Logic* (Dordrecht, 1989).

whether it is legitimate, in connection with the events of the world, to speak of contingency in any proper sense.

It is well known that Aristotle admitted the existence of truly contingent events and corresponding truly contingent propositions. According to many scholars his answer to the deterministic argument is that future contingent propositions are neither true nor false before the time to which the events expressed by them refer. So the famous Aristotelian proposition

(1) There will be a sea-battle tomorrow

can be properly called neither true nor false before tomorrow. Unfortunately, this interpretation, which is usually called 'the traditional interpretation', is not shared by all scholars and it may be the case that it is not Aristotle's view.[2]

As I said, I am not concerned with Aristotle. What is relevant to me is that Ammonius cannot be labelled as a follower of the traditional interpretation. This view is not new, since it has been convincingly defended by Richard Sorabji and Bob Sharples,[3] and I do not need to spend much time in illustrating it, although Dorothea Frede in a recent article published after Sorabji's and Sharples's work still attributes the traditional interpretation to Ammonius.[4] The core of Ammonius' solution consists in the distinction he pro-

[2] One of the best-argued presentations of the traditional interpretation is due to R. Sorabji, *Necessity, Cause and Blame: Perspectives on Aristotle's Theory* (London, 1980), 91 ff. Different views have recently been proposed by van Rijen, *Aspects of Aristotle's Modal Logic*, 103 31, and van Eck, 'Another Interpretation of Aristotle's *de Interpretatione* IX'.

[3] See Sorabji, *Necessity, Cause and Blame*, 92–3; R. W. Sharples, 'Alexander of Aphrodisias, *de Fato*: Some Parallels', *Classical Quarterly*, NS 28 (1978), 263–4. Łukasiewicz had briefly expressed the same view in a famous article: 'Philosophical Remarks on Many-Valued Systems of Propositional Logic', in S. McCall (ed.), *Polish Logic 1920–1930* (Oxford, 1967), 64; Eng. trans. also available in Łukasiewicz, *Selected Works*, ed. L. Borkowski (Amsterdam, 1970), 153–78; first pub. in German: 'Philosophische Bemerkungen zu mehrwertigen Systemen des Aussagenkalküls', *Comptes Rendus des Séances de la Société des Sciences et des Lettres de Varsovie*, ser. 3, 23 (1930), 51–77.

[4] Cf. Frede, 'The Sea-Battle Reconsidered', 43 5. She repeats here the interpretation already proposed in her book on Aristotle's sea-battle published in 1970 (see *Aristoteles und die 'Seeschlacht': Das Problem der Contingentia Futura in 'de Interpretatione' 9* (Göttingen, 1970), 24–7). On the same line is Jossip Talanga (*Zukunftsurteile und Fatum*, 144–5, and also Review of *Al-Farabi's Commentary and Short Treatise on Aristotle's 'de Interpretatione'*, trans. with intro. and notes by F. W. Zimmermann, *Archiv für Geschichte der Philosophie*, 68 (1986), 306–7).

poses between what is definitely and indefinitely true or false. To get an idea of the way in which the distinction is formulated by Ammonius we may read the following passage:

[A] ⟨Aristotle⟩ simply says that singular propositions concerning the future divide truth and falsity, but not in the same way as propositions concerning the present or the past. For it is not yet possible to say which of them will be true and which will be false in a definite way (ὡρισμένως), since before its occurring the thing can occur and not occur.[5]

Propositions which do not divide truth and falsity in a definite way are said by Ammonius to be indefinitely (ἀορίστως) true or false:

[B] This is precisely what we are looking for now, i.e. whether every contradiction divides truth and falsity in a definite way, or there is some contradiction which divides them in an indefinite way (ἀορίστως).[6]

The metaphor of dividing truth and falsity is customary among Aristotle's commentators and can easily be explained by reference to the principle of bivalence. As is known, the principle of bivalence is usually distinguished from the law of excluded middle. The latter says that a proposition P either is the case or is not the case. We can express it by

(EM*) $P \vee \neg P$.

If we introduce a truth predicate 'T' into the language we can restate (EM*) as

(EM) $T(\ulcorner P \urcorner) \vee \neg T(\ulcorner P \urcorner)$[7]

and take (EM) as the law of excluded middle in the extended language. On the other hand, the principle of bivalence asserts that a proposition is either true or false, i.e.

(PB) $T(\ulcorner P \urcorner) \vee F(\ulcorner P \urcorner)$.

Then we can say that a pair of contradictory propositions, e.g. P

[5] *In Int.* 130. 20 -6.   [6] *In Int.* 131. 2–4.
[7] By '$\ulcorner P \urcorner$' we express the so-called 'nominalization' of P, since in $T(\ulcorner P \urcorner)$ P appears as a subject of the T-predicate.

and ¬*P*, divide truth and falsity if they are such that one is true and the other false, i.e. if they satisfy (PB).[8]

Ammonius points out in the text just quoted and in several other passages that not only propositions concerning the past and the present, but also propositions concerning the future, divide truth and falsity. For instance, in trying to elucidate the meaning of Aristotle's *οὐχ ὁμοίως* at 18ᵃ28, he claims that pairs of contradictory singular future contingent propositions

> [C] divide at any rate truth and falsity, however not in a definite but an indefinite way. It is necessary that Socrates tomorrow either will or will not bathe and it is not possible that both or neither are true.[9]

It is hard to believe that a follower of the traditional interpretation would have subscribed to such a view, which implies that (PB) holds not only for past and present but also for future contingent propositions. If (1) is supposed sometimes to have no truth-value at all, it always satisfies (EM) and it sometimes does not satisfy (PB): since it has no truth-value now, (1) is not true now, and in this sense (EM) holds for it even now. However, if (1) is now neither true nor false, (PB) cannot hold for it at any time.[10]

This seems to me the strongest argument against the view which ranges Ammonius among the partisans of the traditional interpretation. I do not want to dwell any longer on this question. Let me simply stress a consequence of Ammonius' admitting that (PB) holds unconditionally. We are allowed to say that not only definitely true but also indefinitely true propositions are true. This means that a proposition which is indefinitely true cannot be labelled as allegedly true or quasi-true.[11] It is really true no more and no less than any other true proposition. Indefiniteness (or definiteness) qualifies the way in which a proposition is true just as biped

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[8] As is obvious, an equivalent formulation of (PB) is

(PB′) $T(\ulcorner P\urcorner) \vee T(\ulcorner \neg P\urcorner)$

[9] *In Int.* 139. 15–17. See also *in Int.* 139. 32–140. 4; 140. 11–13.

[10] G. Patzig, 'Aristotle, Łukasiewicz and the Origins of Many-Valued Logic', in P. Suppes (ed.), *Logic, Methodology and Philosophy of Science* (Amsterdam, 1973), 921–9, has clearly underlined the fact that the traditional interpretation is inconsistent with the admission of (PB).

[11] *Pace* Frede, 'The Sea-Battle Reconsidered', 43; *Aristoteles und die 'Seeschlacht'*, 25, who thinks that Ammonius' speaking of indefinitely true or false propositions is only 'a diplomatic way' of saying that (PB) admits of exceptions.

and quadruped determine types of animals. A biped is no less an animal than a quadruped and a proposition which is qualified as indefinitely true or false is no less true or false than any other proposition.

This interpretation is confirmed by Boethius. It is known that Boethius does not depend directly on Ammonius for his commentary on the *de Interpretatione*; but the similarity of their treatment of future contingent propositions strongly suggests that they draw their inspiration from a common source.[12] Therefore, we can to some extent use Boethius to understand Ammonius. Boethius in a polemical statement against the Stoics expressly denies that future contingent propositions can be neither true nor false:

[D] Some people (among them the Stoics) believe that Aristotle said that contingent propositions in the future are neither true nor false. They took his statement that ⟨the contingent⟩ is no more related to being than to not being as a statement that there is no difference in considering ⟨the corresponding propositions⟩ as true or false. For they thought that these propositions are neither true nor false. But falsely. Aristotle does not say this, i.e. that both ⟨members of a contradiction⟩ are neither true nor false, but rather that one or other of them is true or false, not however in a definite way as in the case of past and present propositions.[13]

Could anything be clearer than this? Boethius rejects the traditional interpretation. If A and $\neg A$ are future contingent propositions, it is not true to say that they are neither true nor false. They are true or false, but not definitely true or definitely false, and in

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[12] Courcelle's thesis that Ammonius was Boethius' main source is now rejected by all scholars (cf. P. Courcelle, *Les Lettres grecques en Occident: De Macrobe à Cassiodore* (Paris, 1948), 264). The view that both commentators depend on a common source was proposed by J. Shiel, 'Boethius' Commentaries on Aristotle', *Mediaeval and Renaissance Studies*, 4 (1958), 228–34; repr. in M. Fuhrmann and J. Gruber (eds.), *Boethius* (Darmstadt, 1984), 155–83, and in R. Sorabji (ed.), *Aristotle Transformed: The Ancient Commentators and their Influence* (London, 1990), 349–72; it is shared by L. Obertello, *Severino Boezio*, 2 vols. (Genoa, 1974), i. 522–44; Zimmermann (cf. Al-Fārābi, *Commentary and Short Treatise on Aristotle's 'de Interpretatione'*, ed. F. W. Zimmermann (London, 1981), p. lxxxviii); and N. Kretzmann, 'Boethius and the Truth about Tomorrow's Sea-Battle', in L. M. de Rijk and H. A. G. Braakhuis, *Logos and Pragma: Essays on the Philosophy of Language in Honour of Professor Gabriel Nuchelmans* (Nijmegen, 1987), 66–7.

[13] *In Int.*, sec. ed. 208. 1–11.

this sense they satisfy not only (EM) but also (PB).[14] We may properly conclude that the same holds for Ammonius.

II

Before making any attempt to understand Ammonius' claim as it emerges from our text [A], we must briefly describe how he proposes to characterize the critical propositions discussed in *de Interpretatione* 9. According to Ammonius they are temporally qualified with respect to the future, in the sense that they refer to future events.[15] In this he seems merely to repeat Aristotle. What is more interesting is that Ammonius states more clearly than Aristotle does that the propositions in question are not only future but also contingent. From the fact that Aristotle employs the expression "ἐπὶ δὲ τῶν καθ' ἕκαστα καὶ μελλόντων"[16] to qualify what is at issue, where "μελλόντων" rather than "ἐσομένων" is used, he infers that the events and propositions in question are contingent events and propositions,[17] or, following Ammonius' way of putting it, propositions on contingent matter (κατὰ τὴν ἐνδεχομένην ὕλην).[18] This means that the propositions in question are not propositions whose modal operators are explicitly stated, but propositions which are said to be contingent because they refer to contingent events.

Finally, Ammonius stresses that the propositions discussed by Aristotle are singular. This is the straightforward and obvious interpretation of Aristotle's ἐπὶ δὲ τῶν καθ' ἕκαστα at 18ᵃ34. What is strange is that Aristotle's main example is (1), which is not, on the most natural construction, a singular proposition. In fact Ammonius never quotes (1)[19] and he prefers examples such as

(2) Socrates will bathe tomorrow.

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[14] See also Kretzmann, 'Boethius and the Truth about Tomorrow's Sea-Battle', 65–6.

[15] Although Ammonius does not say so explicitly, I assume that he would not have counted as a proposition concerning the future a sentence such as 'It will be true tomorrow that three years ago Philip had a car accident'.

[16] *Int.* 9. 18ᵃ33.   [17] *In Int.* 138. 34 ff.   [18] See e.g. *in Int.* 139. 10.

[19] As far as I remember the only exception is at *in Int.* 154. 32. However, later on he considers a proposition such as 'a white baby will be born tomorrow' (e.g. *in Int.* 144. 15–16), which seems to be of the same type as (1).

In (2) a pseudo-date is used, but there are also examples where the futurity of the event in question is left open as in

(3) This sick person will recover.[20]

However, most of his examples *do* contain a pseudo-date.[21]

It is easy to see that Ammonius assumes that there is a correlation between contingency, futurity, and the way in which a proposition is qualified in its truth-value. Past and present propositions in any matter, that is past and present propositions which can be truly qualified as necessary or contingent, divide truth and falsity in a definite way and in this sense they are definitely true or false.[22] On the other hand, being indefinite in its truth-value is something that can only happen to a proposition concerning the future. However, not every proposition concerning a future event is indefinite in its truth-value. If the event referred to is necessary, the proposition expressing it is definitely true or false.[23] But the same happens for a contingent event, when all the conditions for its realization are given. The following passage more or less makes this point. Ammonius claims that in some cases it is possible to have definite knowledge of future events. He says:

[E] It is clear that even for our knowledge it is sometimes possible to know in a definite way (ὡρισμένως) what is contingent, i.e. when it is no longer contingent in the proper sense but follows by necessity from the causes which precede its generation. A sphere lying on a plane parallel to the horizon can be moved or not by someone, if the plane preserves its position. But if the plane is inclined, it is impossible for the sphere not to move.[24]

The example of the sphere shows what kind of contingency is at issue with future propositions. A sphere lying on a horizontal plane may be moved or not. It depends on someone's decision. Before the decision is taken, it is open whether the sphere will be moved or not. But after the decision and when the plane has been inclined, the moving of the sphere cannot be prevented and in this sense it is no longer open for it to move or not. Since all past and present events cannot be changed, only the future is open, at least for those

[20] *In Int.* 140. 15–16.
[21] I take the terminology of 'pseudo-dates' from N. Rescher and A. Urquhart, *Temporal Logic* (Vienna, 1971), 27.
[22] *In Int.* 130. 1–20.   [23] *In Int.* 130. 1–5.   [24] *In Int.* 137. 1–7.

events for which the causally sufficient conditions for their being or
not being are not yet given. This text implies that one and the same
proposition can be treated as necessary or contingent according to
the different situations to which it is tied. If at a given time before
the starting of the battle the decision of the admirals is taken and
this means that the event is unpreventable, then at that time (1) is
no longer a contingent proposition. On the other hand, before the
decision the future of the battle is still open and in this sense it is
contingent that the battle will take place.

In our passage what is in question is definite or indefinite know-
ledge, a notion which is not the same as having a definite or indefi-
nite truth-value. However, one might reasonably assume that we
can have definite knowledge of a proposition P only if P has a
definite truth-value. On this assumption the text implies that a
future proposition concerning a contingent event may take a defi-
nite truth-value when all the conditions for the realization of the
event are given and it becomes unpreventable. This explains why
present and past propositions are said to have a definite truth-
value. The events that they express are fixed. It is no longer open
whether yesterday a sea-battle took place. Either it happened or it
did not, since the past and the present cannot be changed. To make
the point in a different way, when a proposition has a truth-value
which cannot be different it is a necessary proposition and it has a
definite truth-value. On the other hand, a future proposition
concerning a contingent event has a truth-value which might be
different and for this reason it is true or false in an indefinite way.

This analysis suggests a further point about the way in which
propositions such as (1) and (2) may be formally represented.[25] A
proposition concerning the past or the present is said to be neces-
sary. The kind of necessity implied by it is not logical necessity, but
a sort of historical necessity, the same necessity which is attributed
to a contingent event when all the conditions for its realization are
given. The historical necessity of a proposition entails that it cannot
change its truth-value: it is either true or false, and this holds for
ever. Consider now a proposition such as

(4) Yesterday a sea-battle took place.

According to Ammonius' account, (4) is a proposition about the

[25] We leave aside (3), where no pseudo-date is expressed.

past and it cannot change its truth-value. But this may not be true if we assign to "yesterday" the proper meaning of a pseudo-date. Suppose that (4) is uttered today and that it is true. This means that yesterday a sea-battle took place. Thus, it is still true tomorrow only if today a sea-battle takes place, and so for every day. To attribute an unchangeable truth-value to (4) we must take "yesterday" as referring to a fixed date. Suppose that "yesterday" is a way to refer to Sunday, 23 June 1991. Then, one might reasonably claim that the proposition

(5) A sea-battle took place on 23 June 1991

is definitely true or false at any time after this date.

The same point is made by Ammonius by discussing the so-called deterministic objection. According to him this objection can be put as follows:

[F] ⟨Aristotle⟩ starting the argument again from the beginning, says: 'again if something is white now',[26] for instance a baby just born, 'it was true to say'[27] the day before that a white baby would be born, and not only the day before, but also at any preceding time. What is the result? It is not possible that that of which we tell the truth by always saying before that it is the case will not be the case, just as it is not possible that that of which we tell the truth by saying that it is the case is not the case. Therefore, it was impossible that a white baby would not be born, because the prediction effected in the indefinitely preceding time is true.[28]

The proposition that according to the determinist is true at any time cannot be

(5) Tomorrow a white baby will be born

since its being true at any time implies that a white baby is born each day.

To overcome this difficulty we can proceed this way. Let us introduce a temporal constant in the propositions we are going to consider, say k, and take the content of the proposition as a predicate of the temporal constant. For instance, proposition (1) will be transformed into:

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[26] These are Aristotle's words: *Int.* 9. 18ᵇ9–10.
[27] Again Aristotle's words: *Int.* 9. 18ᵇ10.   [28] *In Int.* 144. 15–19.

(1*) A sea-battle takes place at k,

where k is a date and "takes place" has to be taken atemporally. In general we can express the form of these propositions by "$P(k)$". Needless to say, (1*) does not correspond to (1) completely, since (1*) does not involve any reference to the future. To introduce such a reference we shall be considering a class of utterances of such propositions, namely those made at n, where $n < k$.[29] To be clear, by this analysis of a proposition such as (1) I do not claim that in general propositions containing pseudo-dates can be reduced to propositions in which any relevant reference to time is made by real dates, and that the so-called 'A-series' can be reduced to the B-series.[30] My point is simpler and weaker. In order to make sense of the way in which Ammonius uses a proposition such as (1) we may read it as an utterance of (1*).

III

Before offering an interpretation of the distinction between definitely and indefinitely true (false) propositions we must reject an easy temptation. Suppose that $P(k)$, a singular contingent proposition, is the case at k. Therefore, according to Ammonius at some time before k, say j, $P(k)$ is true and indefinitely true. One might try to explain this mysterious reference to an indefinite truth by connecting it to an epistemological situation. Before k $P(k)$ has a truth-value which is indefinite because we are not able to state it. Indefiniteness does not depend on the objective state of the events and propositions, but on our inability to grasp them adequately.

There are some texts which may be invoked as evidence for this interpretation. Consider the final part of text [A]. In our translation we have taken "*ὡρισμένως*" to refer to a proposition's being true or being false by analogy with the many passages where "*ὡρισμένως*" specifies the truth-value of propositions. But it would

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[29] I would like not to get involved in the difficult problems concerning the way in which time must be conceived, as a continuum or a succession of discrete instants or a succession of intervals.

[30] There is a well-known debate among philosophers on this subject. A useful discussion of the question can be found in Sorabji, *Necessity, Cause and Blame*, 97–102.

probably be more natural to refer "ὡρισμένως" to "ἔστιν εἰπεῖν". If so, it is the possibility of saying that a proposition is true or false which is not yet determined. In another passage in order to explain why one of "Socrates will bathe tomorrow" and "Socrates will not bathe tomorrow" is true and the other false but in an indefinite way, Ammonius says that 'it is not possible to know which of them is true before the event occurs'.[31] Once again the fact of having an indefinite truth-value is explained by reference to an epistemological situation. In a parallel way, with reference to a pair of contradictory propositions concerning the past or the present their having a definite truth-value is explained by saying that 'in so far as the event which is at issue has occurred, which of the two singular propositions is true and which is false is clear'.[32] One might take this statement as asserting that a present or past proposition is definitely true or false because its truth-value is clear, i.e. can be grasped.

Although this interpretation is attractive for its simplicity, it must be rejected. First of all, the distinction between definitely and indefinitely true (false) propositions is appealed to in order to avoid determinism. But a purely epistemic undecidability cannot do the job. In this perspective, although I cannot decide about the truth or falsity of $P(k)$ at, say, j ($j < k$), $P(k)$ nevertheless has a fixed truth-value and this is sufficient to trigger off the deterministic argument. In order to escape determinism we need to interpret the distinction between definitely and indefinitely true or false propositions as an ontological distinction. Again, Ammonius more than once points out that contingent things have an indefinite nature[33] and it is easy to suppose that the indefinite truth-value assigned to propositions depends on the indefinite nature of the events expressed by them. This interpretation is confirmed by some statements made by Boethius, where the epistemological interpretation is explicitly rejected.[34]

The conclusion is that we must look for a different interpretation of Ammonius' distinction. The lack of knowledge or unclarity we have about the truth-value of future contingent propositions is a consequence of their not having a definite status with respect to

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[31] *In Int.* 139. 17–18.   [32] *In Int.* 130. 11–14.
[33] See e.g. *in Int.* 136. 12–13.
[34] See Boethius, *in Int., sec. ed.*, 208. 11–18; 245. 19–28.

truth and falsity. Contingent propositions about the future are indefinitely true or false not because the future is hidden or unknown to our mind, but because the ontological status of the facts they refer to is not yet settled. What is uncertain is not the possibility of knowing before tomorrow that Socrates bathes tomorrow but the event itself, since it is set in the future and is contingent.

IV

In order to construct a positive interpretation of Ammonius' distinction it may be useful to summarize the results of our inquiry so far. We have seen that the distinction between past and future contingent propositions depends on the way in which they divide truth and falsity. Past propositions are definitely true or definitely false, while future propositions are indefinitely true or indefinitely false. If (1) is interpreted as an utterance of (1*), one can say that (1) is indefinitely true today and becomes definitely true tomorrow. This means that characterizing the truth-value of a proposition as definite or indefinite depends essentially on the time at which the proposition is uttered or evaluated. Again, we must remember that being definite or indefinite for a truth-value depends on the causal milieu in which we consider the event denoted by the proposition. The reason is that an indefinite truth-value applies to contingent propositions, and being contingent for a proposition entails that the event denoted by it is not yet causally determined.

In the light of these remarks let us try to specify the context in which a formal characterization of the notions of definite and indefinite truth can be made. Since propositions are definitely or indefinitely true or false with respect to the time at which they are uttered or considered and the situation of the world in which they are stated, we may express the predicates "definitely true" and "indefinitely true" of a proposition A as three-places predicates whose parameters are (i) the time in which a proposition A is uttered or considered, (ii) the state of the world in which A is evaluated, and, of course, (iii) A itself. Therefore, we write, for instance, "$T_D(\ulcorner A \urcorner, S_i, t)$" to say that A is definitely true at time t and with respect to the situation of the world S_i. Similarly, "$T_I (\ulcorner A \urcorner, S_i, t)$" is a way of saying that A is indefinitely true at t and with respect to S_i.

Moreover, since contingency must be taken as the open part of our future and linked to time, we can picture the world as a branching structure or a tree whose nodes represent possible states and its paths possible histories. Time can be interpreted as an order relation on the different stages of possible states of the world.[35] To make things easier we may think of the history of a single proposition and represent it by means of an ordinary binary tree as follows:

(I)
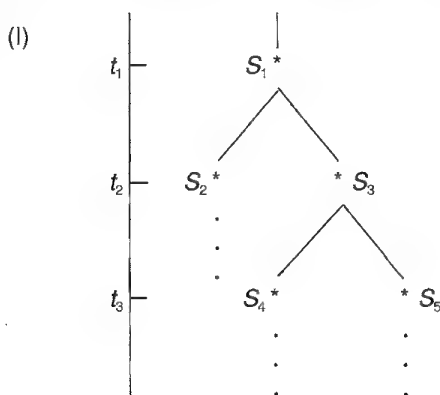
S_1–S_5 are nodes and the lines going through nodes are paths of the tree.

We can express the relation between time and the nodes of a tree by introducing the notion of level and by saying that an instant t_i is the level of a node S_j. With reference to (I) we can state, for instance, that

(6) $t_2 = Lv(S_2)$.

It is easy to define in a rigorous way what "being a possible development of S_i" means for a state S_j in such a structure. This notion is the intuitive counterpart of the relation of accessibility, which is well known to modal logicians. We represent it by "$Acc\,(S_i, S_j)$" and we take it to be reflexive and transitive.[36] For instance, with respect to (I) we can say that S_5 is a development of S_1, because there is a

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[35] See Rescher and Urquhart, *Temporal Logic*, 125 ff.

[36] For the notion of accessibility, see G. E. Hughes and M. J. Cresswell, *An Introduction to Modal Logic* (London, 1968), 75–80. Since the accessibility relation is supposed to be reflexive and transitive, the modal system involved is at least as strong as S_4.

path going back from S_5 to S_1 through S_3, while S_4 is not accessible to S_2 since there is no such backward path. Therefore, it is with respect to structures such as (I) that we have to define what it is for a proposition to be definitely or indefinitely true or false.

V

We are still far away from a definition of T_D- and T_I-predicates. To achieve this aim we have first to try to define what it is for a proposition $P(k)$, which is supposed to denote a contingent event, to be true with respect to a given situation of the world S_i. Ammonius has a general correspondence theory of truth: A is true if and only if the event denoted by A is the case.[37] Therefore, $P(k)$ has a clear-cut truth-value at k. If the event denoted by $P(k)$ is the case at k, then $P(k)$ is true; otherwise $P(k)$ is false. Therefore, if we consider $P(k)$ in S_i and S_i is on a level equal to or greater than k, we must assign to $P(k)$ either the truth-value True or the truth-value False according to the way in which we conceive the situation of the world we are referring to. Thus, $P(k)$ in S_i ($Lv(S_i) \geq k$) has the assigned truth-value True or the assigned truth-value False. Let us write "$Ass\ (P(k), S_i) = 1$" for "The truth-value True is assigned to $P(k)$ in the node S_i". In a similar way, we state "$Ass\ (P(k), S_i) = 0$" for "The truth value False is assigned to $P(k)$ in the node S_i" or, what is the same, "The truth value True is assigned to $\neg P(k)$ in S_i".[38] Formally, we have

(T*) $T^*(\ulcorner P(k)\urcorner, S_i)$ iff $Ass\ (P(k), S_i) = 1$

[37] See *in Int.* 139. 26 ff.; 140. 32 ff.; 154. 16–20.

[38] To be precise, we have to distinguish between atomic and non-atomic propositions. A truth-value can be assigned just to atomic propositions and their negations, for instance to $P(k)$ or $\neg P(k)$. From the notion of assigned truth-value we can work out the more general notion of being assignedly true or false in a node S_i, which can be applied to compound propositions. Having defined what it is for an atomic proposition $P(K)$ to have the assigned truth-value 1, we can construe the definition of "assignedly true (false) in a node S_i", which we can represent by "$T^+(\ulcorner A\urcorner, S_i)$" and "$F^+(\ulcorner A\urcorner, S_i)$". If A is an atomic formula, then "$T^+(\ulcorner A\urcorner, S_i)$ iff $T^*(\ulcorner A\urcorner, S_i)$, and $F^+(\ulcorner A\urcorner, S_i)$ iff $F^*(\ulcorner A\urcorner, S_i)$. If A is $\neg B$, then $T^-(\ulcorner A\urcorner, S_i)$ iff $F^-(\ulcorner B\urcorner, S_i)$. If A is $B \wedge C$, then $T^+(\ulcorner A\urcorner, S_i)$ iff $T^-(\ulcorner B\urcorner, S_i)$ and $T^+(\ulcorner C\urcorner, S_i)$. The other propositional operators can be defined derivatively. The definition can be easily extended to first-order formulae if a set of individuals is associated with every node of a path. But for our purposes the unextended definition is enough, since no other propositions than atomic ones and their negations are considered by Ammonius.

and

(F*) $F^*(\ulcorner P(k)\urcorner, S_i)$ iff $Ass\ (P(k), S_i) = 0$.

What it is important to underline is that a truth-value can be assigned to a proposition if and only if the conditions for assigning such a truth-value to it are given, i.e. if the events referred to by the propositions take place or are at least somehow implied by the due course of events. If we have to do with a contingent proposition, i.e. a proposition in which the event denoted by it is not settled before the happening of the event itself, it is reasonable to state that no assignment to $P(k)$ can be made before k, i.e. in a node which is on a level preceding k. If it is now contingent that a sea-battle will take place at k (where $n < k$), in no node on a level preceding k can we assign a truth-value to "A sea-battle will take place at k".[39] Therefore, we may state

(PA) $T^*(\ulcorner P(k)\urcorner, S_i) \vee F^*(\ulcorner P(k)\urcorner, S_i) \rightarrow Lv(S_i) \geq k$

In other words, if a truth-value is assigned to a proposition with respect to a situation S_i, then the level of S_i must be either the same or greater than k.

Moreover, it is easy to understand that if a truth-value is assigned to $P(k)$ in S_i, this truth-value remains constant in any node accessible to S_i. This corresponds to the intuition that what has happened or is happening cannot be changed, so that it is irrevocable in every possible development of the world. Ammonius does not say this in so many words, but it may be implied by his claiming that what is stated about the present or the past is necessarily true or necessarily false:

> [G] If it happens that Socrates does not bathe or did not bathe yesterday, it is clear that it is necessary that the negation taken according to the present or the past tense is true and the affirmation saying that Socrates bathes or bathed is false.[40]

If with respect to the situation S_i it is the case that Socrates bathes at k, then, however the world might develop, it remains true that

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[39] In principle 'A sea-battle will take place at k' might have an assigned truth-value even before k, if the conditions which unequivocally determine the happening or not-happening of this event are given at some time before k (see text [E]). But to avoid complications we may suppose that these conditions are not given before k.

[40] *In Int.* 130. 17–20.

Socrates bathes at k. Past and present events are such that the corresponding propositions are eternally preserved in their truth-value. The same must be said with respect to falsity. If $P(k)$ takes o as an assigned truth-value in S_i, then it takes o in any node accessible to S_i. We can express formally the point we have tried to make informally by stating

(AT) $T*(\ulcorner P(k)\urcorner, S_i) \rightarrow (\forall S_j(Acc(S_i, S_j) \rightarrow T*(\ulcorner P(k)\urcorner, S_j)))$
(AF) $F*(\ulcorner P(k)\urcorner, S_i) \rightarrow (\forall S_j(Acc(S_i, S_j) \rightarrow F*(\ulcorner P(k)\urcorner, S_j)))$.

(AT) and (AF) express the condition according to which when a truth-value is assigned to a proposition with respect to a node S_i, it remains the same in any node accessible to S_i.

It is reasonable to think that when a truth-value is assigned to $P(k)$ in S_i, where $Lv(S_i) \geq k$, $P(k)$ receives an assigned truth-value in every node which is either on the same level as S_i or after S_i, independently of its accessibility to S_i. The conditions which allow us to attribute an assigned truth-value to $P(k)$ are at any rate given at k. Whatever the situation or the history of the world may be, from k onwards $P(k)$ is assignedly true or false. If the proposition in question is "There is a sea-battle at k", we must admit that at k, and after, the conditions are given to assign a truth-value to the proposition in any possible history of the world. We can therefore state:

(AP) $Lv(S_i) \geq k \rightarrow T*(\ulcorner P(k)\urcorner, S_i) \vee F*(\ulcorner P(k)\urcorner, S_i)$,

which is the converse of (PA). An example of what we are saying is this. Since the truth-values of $P(k)$ remain constant once they are assigned, we can simplify (I) and imagine that the following assignation of truth-values is given to $P(k)$:
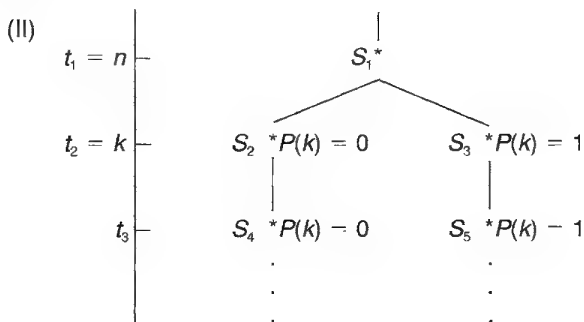
Since by hypothesis $t_2 = k$, in virtue of (AP) we can assign a truth-value to $P(k)$ with respect to S_2 and S_3. Suppose that $P(k)$ takes the assigned truth-value o in S_2 and the assigned truth-value ı in S_3. Thus, in any node accessible to S_3 $P(k)$ will have the assigned truth-value ı and in any node accessible to S_2 it will have the assigned truth-value o because of (AT) and (AF). On the other hand, no truth-value can be assigned to $P(k)$ in S_1, because its level is t_1, which is by hypothesis before k, and (PA) is supposed to hold. Shall we conclude that $P(k)$ is neither true nor false in S_1, since no truth-value can be assigned to it? As we have seen, Ammonius' answer is negative. His view is that even before k $P(k)$ is true or false, but not in a definite way—in a way, we are tempted to say, that makes the happening of the event denoted by it inescapable.

We may try to interpret his view as follows. Suppose that we are able to refer to what is happening in the *real* future, i.e. what will in fact happen, whatever that may be. If $P(k)$ will *really* take the assigned truth-value ı at k, then it is in some sense always true that $P(k)$ will take such a value at k. What I mean is that if the truth-value ı is assigned to $P(k)$ in a node of the path which is supposed to represent the *real* history of the world (of course after k), then we are entitled to say that $P(k)$ is factually or plainly or simply true. Take $\mathfrak{R}$ to be the path representing the *real* history of the world, and suppose that S_n, whose level is by hypothesis equal to or greater than k, belongs to $\mathfrak{R}$, i.e. that $S_n \in \mathfrak{R}$. Then if the truth-value ı is assigned to $P(k)$ in S_n, $P(k)$ is factually or plainly or simply true. If "$T(P(k))$" stands for "$P(k)$ is simply true"[41] we can write:

(T) $T(\ulcorner P(k)\urcorner)$ iff $\exists S_i(S_i \in \mathfrak{R} \land T^*(\ulcorner P(k)\urcorner, S_i))$.

If we suppose that the bold line in (II) represents the *real* path $\mathfrak{R}$, we can say that $P(k)$ is simply true because there is at least one node on $\mathfrak{R}$, namely S_3, where $P(k)$ takes the assigned truth-value ı. In a similar way we can characterize an atomic proposition which is simply false by assuming:

(F) $F(\ulcorner P(k)\urcorner)$ iff $\exists S_i(S_i \in \mathfrak{R} \land F^*(\ulcorner P(k)\urcorner, S_i))$.

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[41] In speaking of "simple truth (falsity)" I have been inspired by the terminology of von Wright, who uses the expression 'plain truth' (see G. H. von Wright, 'Determinism and Future Truth', in *Truth, Knowledge and Modality, Philosophical Papers*, iii (London, 1984), 5).

The idea involved by (T) and (F) is plain and corresponds quite well to our intuition. If conditions for the truth or falsity of $P(k)$ will be given in the future, then $P(k)$ is at any time true or false, in the sense that $P(k)$ will take either the assigned truth-value 1 or the assigned truth-value 0 in the real future of the world.

It is easy to see that the notions of truth and falsity involved by *T*- and *F*-predicates are to some extent atemporal, in the sense that they do not depend on the time of utterance or evaluation of the propositions at issue. To qualify a proposition *A* as simply true or false it is sufficient to be sure that *A* will take an assigned truth-value in the real history of the world. If a sea-battle takes place at *k*, the proposition "There is a sea-battle at *k*" receives the assigned truth-value 1 at *k* and before *k* it has no assigned truth-value. But its being true, i.e. its expressing a conformity to an event, is something which does not depend on the time of utterance. To ensure the possibility of such a correspondence we need only admit that we are allowed to refer to the series of events which will take place in the *real* development of the world. We do not need to wait until the conditions which give an assigned truth-value to a proposition are settled in order to attach a simple truth-value to it. In this sense plain truth and plain falsity are not intrinsically related to time.[42] Needless to say, it is with respect to simple truth and falsity that Ammonius can maintain that the principle of bivalence holds in every case. Since $P(k)$ or $\neg P(k)$ will be the case at *k*, either $P(k)$ or $\neg P(k)$ is at any time (simply) true.

We are now in a position to give a definition of indefinitely and definitely true or false propositions. As we have seen, what contributes in an essential way to characterize a definitely true proposition is that it denotes a fixed event which occurs in an inescapable way. We can express these features by saying that a definitely true proposition is a simply true proposition to which the truth-value 1 is assigned. By positing that it is a simply true proposition we say that the event denoted by the proposition is an event of the *real* history of the world; by giving the assigned truth-value 1 to it we state that it refers to an unalterable event. Therefore, we write in a condensed way as

(T_D) $T_D(\ulcorner P(k) \urcorner, S_i, t)$ iff $Lv(S_i) = t \wedge T^*(\ulcorner P(k) \urcorner, S_i) \wedge S_i \in \mathfrak{R}$,

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[42] This view has recently been developed by von Wright, ibid. 6.

where, as usual, "$\Re$" denotes the *real* history of the world.[43] A parallel definition of a definitely false proposition can be given in an obvious way.

A characterization of an indefinitely true proposition can easily be worked out from equivalence (T_D). An indefinitely true proposition is a contingent proposition, i.e. a proposition which denotes an event whose outcome is not yet settled, and at the same time is a simply true proposition. Then we can state:

(T_1) $T_1(\ulcorner P(k)\urcorner, S_i, t)$ iff $Lv(S_i) = t < k \land T(\ulcorner P(k)\urcorner)$
$$\land \; \exists S_j(Acc(S_i, S_j) \land F^*(\ulcorner P(k)\urcorner, S_j)).$$

A definition of what it is for a proposition to be indefinitely false can easily be given. To exemplify our definitions we can say with reference to (II) that $P(k)$ is indefinitely true at t_1 in the node S_1. For it is simply true, since it receives the truth-value 1 at S_3, which is on path $\Re$ representing the *real* history of the world; and it is indefinitely true, since in the node S_2, which is accessible to S_1, the truth-value 0 is assigned to $P(k)$. On the other hand, $P(k)$ is definitely true in S_3, since in this node it has the assigned truth-value 1, and S_3 is on the *real* path $\Re$.

It is easy to see that our characterization of definitely and indefinitely true propositions is able to explain in a simple way Ammonius' claim that present or past propositions are definitely true or false, while future contingent ones are indefinitely true or false. Take as usual $P(k)$. A situation S_i in the real history of the world corresponds to k, and taking (II) as an example suppose S_i to be S_3. A truth-value is assigned to $P(k)$ in S_3, the level of S_3 being by hypothesis k.[44] Since its assigned truth-value in S_3 is 1, $P(k)$ has the assigned truth-value 1 in any node accessible to S_3.[45] Therefore, $P(k)$ is definitely true from k onwards. On the other hand, suppose that we consider $P(k)$ before k. A situation in the *real* history of the world corresponds to k. With respect to this situation, call it S_n, we can decide whether $P(k)$ is simply true or false. Suppose it to be

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[43] An alternative characterization of definite truth would be:

(T_D') $T_D(\ulcorner P(k)\urcorner, S_i, t)$ iff $Lv(S_i) = t \land T(\ulcorner P(k)\urcorner) \land T^*(\ulcorner P(k)\urcorner, S_i)$

Remember that the *Ass*-function which defines T^*-truth is monotonic. Therefore, $Ass(P(k), S_i) = 1$ implies $\forall S_j(Acc(S_i, S_j) \rightarrow Ass(P(k), S_j)) = 1$.

[44] Cf. (AP).   [45] Cf. (AT).

simply true. Since by hypothesis $P(k)$ refers to a contingent event, there must be a node accessible to S_n and not on the *real* path in which $P(k)$ takes the truth-value o. Therefore, $P(k)$ is indefinitely true in S_n. If we use the example represented by (II), we can identify S_n with S_1.

VI

What we have to do now is to check our interpretation of Ammonius' view against his effort to make the deterministic argument ineffective. Let us return to text [F] where the deterministic objection is summarized by the commentator. The argument can be generalized and divided into the following steps:

> (*a*) Suppose that $P(k)$ is true at k.
> (*b*) If $P(k)$ is true at k, it is true at j which is before k.
> (*c*) If $P(k)$ is true at j, it is true at any time before k.
> (*d*) If $P(k)$ is true at any time before k, it is necessary.
> (*e*) Therefore $P(k)$ is necessary.

According to the traditional interpretation step (*b*) must be denied. From the very fact that $P(k)$ is true at k it does not follow that it is true at j and at any time before k. If the event denoted by $P(k)$ is not causally determined before k, $P(k)$ has no truth-value before k. But if (*b*) does not hold, the deterministic conclusion can be avoided. We have already seen a consequence of this position, i.e. the invalidation of (PB), and we know that Ammonius did not want to abandon (PB).

There is another consequence of the traditional interpretation which Ammonius could hardly have swallowed. According to the traditional interpretation prediction makes no sense, if by "prediction" is meant a statement concerning a future contingent event, which is true before the time at which the event referred to happens. If $P(k)$ cannot be true before k, and this holds for any future contingent proposition, then any prediction about such events is pointless. If the proposition concerning the event that there is a sea-battle at k has no truth-value when it is uttered before k, then it is useless to predict today that there will be a sea-battle tomorrow. A prediction entails an unavoidable commitment to truth.

It is obvious that the kind of predictions considered by Ammonius have nothing to do with scientific predictions, which are not about contingent events but about events which are governed by laws of some sort. Propositions about such events are definitely true or false even before the time to which the events refer. In Ammonius' account the predictions in question concern events which by definition are not governed by any law. One might think that there is no great harm if such predictions are given up. We might even feel relieved if in the ideal city, ruled by logicians, fortune-tellers, soothsayers, and other people of this sort had no admission. But this was not Ammonius' view. It is a commonplace that the ancient world paid a great deal of attention and gave a large place to oracles, divinations, prophecies, and predictions in general. Philosophers were accordingly interested in these phenomena. The general attitude was more inclined to search for a justification for predictions and oracles than to deny that they are reliable. Moreover, Ammonius and the late Neoplatonic philosophers had a strong theological reason for admitting predictions. The gods are provident and they must know the world on which they exert their beneficial influence in such a detail that nothing escapes their attention. Therefore, even future contingent events must be known to them, and Ammonius does not waver in maintaining that the gods know future contingent events and that predictions are possible.[46]

If predictions are possible, and step (*b*) must be preserved, how can we escape the conclusion of the deterministic argument? Ammonius' answer consists essentially in denying step (*d*). What he says is this:

> [H] Against this argument[47] it must be said that with respect to what has already occurred and has already been produced it is not true to say before its occurring that it will be in any case (πάντως) white.[48] It

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[46] See e.g. *in Int.* 132. 17 ff. On this attitude towards the gods in late Neoplatonism, see e.g. Proclus, *Inst.* 124 (110. 10–13, Dodds); *Theol.Plat.* 1. 15 (69. 10–12, 70. 22–25, 74. 9–16, Saffrey–Westerink) and 1. 21 (98. 5–12); *Decem Dubitationes* 2. 6–23, Isaac; Ammonius, *in Int.* 132. 13 ff. I have discussed these texts in 'Logic and Omniscience: Alexander of Aphrodisias and Proclus', *Oxford Studies in Ancient Philosophy*, 3 (1985), 219–46.

[47] i.e. the determinist argument developed in text [F].

[48] Ammonius is hinting here at the example mentioned in text [F] of the white baby who is just born.

does not follow from the fact that time has brought this event into being that we have to believe that the event has arrived in virtue of an antecedent necessary condition. Therefore, of people who predict this event the truth is told not by one who says that the baby will be white by necessity, but rather by one who says that this will occur contingently. If so, it is clear that it was possible that the event did not occur. For what occurs in a contingent way cannot be true in any other way. Then, people who say these things[49] should not judge what is future from what has occurred, but by keeping it as not yet occurred they should examine whether it occurs necessarily.[50]

Ammonius' point seems to be that predictions are possible and that they do not rule out contingency. Take a contingent proposition $P(k)$ which is true at k, so that (a) is satisfied. According to Ammonius nothing prevents us from admitting that $P(k)$ is true at any time before k, in accordance with premisses (b) and (c) of the deterministic argument. The question is: in what sense is $P(k)$ true before k, being a contingent proposition? Well, if we look at our analysis of the notion of definitely and indefinitely true, the answer is clear: it is *indefinitely* true. Because of (a) $P(k)$ takes an assigned truth-value at k. Since what is denoted by $P(k)$ is the case in the real history of the world, it is T^*-true at the node of the real history of the world whose level is k. But for the same reason $P(k)$ is also simply true, i.e. T-true. It is precisely this situation which allows the possibility of $P(k)$ being truly predicted. On the other hand, $P(k)$ is contingent before k. This means that the possibility of its being false is not ruled out, or, if you prefer, that before k the conditions which determine the event denoted by it are not yet given. We must expect therefore that in one of the possible histories of the world different from the real one $P(k)$ takes the assigned truth-value 0. If so, $P(k)$ is indefinitely true according to our definition (T_1).

If this interpretation is correct, the whole point of Ammonius' refutation of determinism lies in the distinction between definite and indefinite truth. If every proposition were definitely true or false before the time to which the event denoted by it refers, no contingency would be allowed in the world. As he says with reference to a pair of contradictory contingent propositions concerning the future:

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[49] *Οἱ ταῦτα λέγοντος* is probably a misprint since the sense requires *λέγοντες*.

[50] *In Int.* 145. 9–18.

[J] If one of them will be definitely true and the rejection of possibility is a consequence of one of the two propositions of a contradiction being definitely true, it is clear that possibility will be expelled from the things which are.[51]

The claim is clear. Suppose that $P(k)$ is not only plainly true, but definitely true before k, for instance in a node S_j whose level is $j < k$. Then in no node accessible to S_j can $P(k)$ take the assigned truth-value 0 and in this sense the future of $P(k)$ is by no means open. Its truth-value state is settled, and in this way $P(k)$ is no different from a present or past proposition. But once again the fact that $P(k)$ is definitely true or false does not depend on the possibility of its being predicted. It depends on the nature of the event it denotes. In this way the deterministic argument is made ineffective.

Against this view one might object by repeating the deterministic argument. If $P(k)$ is indefinitely true at S_j it is simply true. This means that $P(k)$ will in due course take the assigned truth-value 1 in the real history of the world. Therefore, the future of $P(k)$ at S_j is not at all open, since it is already decided that $P(k)$ will be true in the real world. In other words, the contingent state of $P(k)$ before k is only apparent, since it does not play any role in the development of the real world. This difficulty, I believe, can be met by stressing the difference between being definitely and indefinitely true. What makes $P(k)$ indefinitely true before k is that the real development of the world at the stage in which $P(k)$ is evaluated is not yet fixed. We may refer to the future real history of the world, but how the world will evolve is still completely open. Therefore, what we actually say when we claim that $P(k)$ is indefinitely true at S_j is that $P(k)$ is true on the condition that the world develops in a certain way. And this condition is a real condition, because at S_j the future of $P(k)$ is still open. But again one might urge that at S_j $P(k)$ is either true or false. Then, since it is, say, true, then the *real* development of the world will be such and such and in this sense is already determined. This statement would be true if $P(k)$ at S_j had an assigned truth-value. But this is not the case. Attributing to $P(k)$ a simple truth-value does not depend on the fact that the course of the events is fixed in the future, but is the consequence of admitting that there will be a future and a real history of the world, whatever

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[51] *In Int.* 143. 17–20.

it may be. In other words, what is simply true, by itself, is not part of the furniture of the world in the sense that it refers to events which are, in some sense, already there and which can be causally related to other events. That there is a sea-battle at k is not a fact before k, nor is it causally implied by other facts which are already given, although the proposition which expresses this fact is true or false even before the actual obtaining of the fact.

To admit such a possibility we must concede that the relation between propositions and facts is not a temporal relation. This point is important because it marks the difference between the traditional interpretation and Ammonius' view. Let us pause a little to consider this question. As we have seen, the traditional interpretation is based on the idea that a proposition can only be said to be true or false when the extra-linguistic conditions for this attribution are given. In the case of future contingent propositions these conditions do not obtain. Therefore, no truth-value can be assigned to them. What emerges from this conclusion is that truth is a totally temporal notion, i.e. a notion which can only be applied when appropriate extra-linguistic conditions are the case. The immediate consequence of this view is that the principle of bivalence cannot be considered a logical law and "not being true" for a proposition does not mean "being false".

One might find these implications rather unpalatable. From the fact that now it is not true that tomorrow there will be a sea-battle it cannot be inferred according to the traditional interpretation that a sea-battle will not take place tomorrow. This looks not at all obvious and one might prefer to think of truth as something which is not completely given in time. Of course, the conditions which make a proposition true or false are given in time. It is in time that a sea-battle takes place and it is in time that the truth-value 1 is assigned to the corresponding proposition. But it does not follow from this that the predicate "True" can be applied to a proposition only when the corresponding extra-linguistic conditions occur. If at some time a proposition becomes true in a proper sense, we may refer to this fact even before it happens. If 'There is a sea-battle at k' is T^*-true, or true in an assigned way, at k, so that the conditions for its truth are given at k, then we can refer to the truth of the proposition at any time whatsoever. This does not mean that the conditions which make the proposition true are given at any time. By hypothesis they are not given before k. None the less, if a sea-

battle happens at k, the proposition "There is a sea-battle at k" is 'always' or simply true, in the sense that once and for all it takes the truth-value 1 at k. Its receiving this truth-value at k does not depends on the time we consider the proposition: it holds atemporally.

We cannot pursue any longer this inquiry, which has deep and controversial philosophical implications. I would like to conclude by pointing to one restriction entailed by the traditional interpretation which seems to be implicitly overcome by Ammonius' position. Take for instance a proposition such as

(7) It is always raining.

Its formal counterpart may be represented as follows

(8) $\forall t\, p(t)$.

It seems natural to claim that (8) is true if and only if it rains at every instant; that is, if and only if $..., p(t_i), p(t_j), ..., p(t_m), ...$ Suppose that (8) is true. If the domain over which the variable t ranges is infinite, then at whatever time we evaluate (8) we cannot say that (8) is true. For instance, at $p(t_m)$ we cannot conclude that (8) is true. Of course, if it happens that $\neg p(t_{m+1})$, we can infer at this stage that (8) is false. But if $p(t_{m+1})$, we have still to postpone an assignment of a truth-value to (8) and so there is no time at which we can say that it is true.

Since we cannot state that (8) is true, we cannot assert that a particular indefinite proposition such as

(9) $\exists t p(t)$

is false, since the falsity of (9) is the same as the truth of $\forall t \neg p(t)$, and we have seen that we can assign to (9) the truth-value True at no time.

If we move from the traditional interpretation to a conception in which truth is no longer meant as a temporal predicate, we are immediately able to treat propositions such as (8) and (9). It is sufficient to have the capacity of referring to the totality of the truth-values assigned to propositions $p(t_1), p(t_2), ..., p(t_m), ...$ in the nodes of the *real* path. If these assigned values are all 1, then (8) is true; if they are all 0 (9) is false. It does not matter how we can go along an infinite path. The important point is that we can understand what it means for a proposition such as (8) to be true. This is

possible exactly because it is not implied that truth and falsity are temporal notions, i.e. predicates which can only be attributed to propositions at a given time. From this point of view Ammonius' position seems to offer the possibility of analysing a greater variety of propositions than the traditional interpretation.[52]

VII

Let us turn from these difficult philosophical questions to more familiar historical problems. It will readily be guessed that Ammonius was not the man who invented the theory we have tried to present. He did not possess the capacity for such a creative and difficult task.

The problem arises: who was the common source of Ammonius and Boethius? The question has been studied with reference more to Boethius than Ammonius, and for the Latin commentator the answer seems to be: Porphyry.[53] However, there is no clear evidence for Ammonius. He quotes Porphyry, who seems to be his main source for the discussion of alternative readings of Aristotle's text, more than once.[54] Sometimes he mentions some of his views with approval,[55] and in one case he says that in his exposition he will follow Porphyry's theory, trying to make it clearer.[56] From this

[52] It must, however, be pointed out that if propositions such as (8) and (9) are systematically taken into account, the definitions of definite and indefinite truth and falsity must be modified accordingly. These have been given with reference to time, and no such reference can be applied to propositions which range over the whole of time. Non-temporally committed modalities would have to be introduced to explain the indefinite or definite truth of (8) and (9). But this is another story.

[53] See M. Mignucci, 'Boezio e il problema dei futuri contingenti', *Medioevo*, 13 (1987), 38–41. What is still in dispute is whether Boethius had direct access to Porphyry's commentary on the *de Interpretatione* or rather translated a Greek codex with marginalia mostly taken from Porphyry. On this question, which does not affect our problem very greatly, see Shiel, 'Boethius' Commentaries on Aristotle', 356–61; S. Ebbesen, 'Boethius as an Aristotelian Commentator', in R. Sorabji (ed.), *Aristotle Transformed: The Ancient Commentators and their Influence* (London, 1990), 375 ff., and J. Barnes, 'Boethius and the Study of Logic', in M. Gibson (ed.), *Boethius: His Life, Thought and Influence* (Oxford, 1981), 80.

[54] For instance, a different reading of *Int.* 16ᵇ9–10 is attributed by Ammonius to Porphyry (*in Int.* 50. 8–12), and the same happens with reference to *Int.* 16ᵇ22 (*in Int.* 56. 14–18). Again, Porphyry's discussion of *Int.* 17ᵇ16 ff. is considered with his reading ἀποφαντικῶς instead of ἀντιφατικῶς at *Int.* 17ᵇ17 (*in Int.* 190. 24 ff.), and a variant at *Int.* 19ᵇ24–5 is discussed by quoting Porphyry (*in Int.* 171. 1–6).

[55] See e.g. *in Int.* 32. 3–5; 70. 3 ff.; 99. 8 ff.   [56] *In Int.* 94. 25–8.

evidence we cannot infer even that Ammonius had direct access to the works of Porphyry, since it may be that his quotations of Porphyry were taken from a later source. In fact his main source seems to be Proclus, who is mentioned at the beginning of the commentary in a rather solemn way as the 'divine teacher' whose research on Aristotle had made Ammonius' work possible.[57] In the course of chapter 9 Iamblichus is quoted for the decisive step concerning the solution of the problem of how the gods can know future contingent events.[58] Here the distinction between having definite and indefinite knowledge of future contingents plays an important role, and this distinction has something to do with the distinction between definitely and indefinitely true or false propositions.[59] But once more Iamblichus' point was well known to Proclus,[60] and we can once more suppose that Proclus was the direct source of Ammonius. A prudent conclusion may be that Ammonius refers to a doctrine whose existence can be traced back to Porphyry.

However, we could try to push our inquiry a step further by asking whether Porphyry was the creator of the doctrine. There are some texts which make the answer controversial. We must take into account a passage of Simplicius to which Richard Sorabji first drew attention.[61] A certain Nicostratus is mentioned in it, who is probably to be identified with the Nicostratus who received an honorific inscription at Delphi and was a Platonic philosopher who flourished in the middle of the second century AD.[62] Simplicius reports that Nicostratus denied any truth-value to future contingent propositions, making him a partisan of the traditional interpretation.[63] If we may trust Cicero's evidence, Nicostratus was not the only ancient follower of the traditional interpretation, since Epicurus was also among its supporters.[64] After Nicostratus Simplicius considers the position of the Peripatetics and he says:

[57] *In Int.* 1. 6–11. Strangely enough, Proclus is quoted in only one other passage, at 181. 30 ff. (cf. Stephanus, *in Int.* 46. 25–6).

[58] *In Int.* 135. 14.   [59] *In Int.* 135. 12 ff.

[60] See *Inst.* 124 (110. 10–13, Dodds); *Theol.Plat.* 1. 15 (69. 10–12, 70. 22–5, 74. 9–16, Saffrey Westerink); *Decem Dubitationes* 2. 6–23, Isaac.

[61] See Sorabji, *Necessity, Cause and Blame*, 92–3.

[62] See K. Praechter, 'Nikostratos der Platoniker', in *Kleine Schriften* (Hildesheim, 1973), 101–13; J. Dillon, *The Middle Platonists: A Study of Platonism 80 BC to AD 220* (London, 1977), 233–6.   [63] Simplicius, *in Cat.* 406. 13–16.

[64] Cicero, *de Fato* 9. 18; 10. 21; 16. 37; *Acad.* 2. 97.

[K] But the Peripatetics say that the contradiction regarding the future
is true or false, while it is by nature ungraspable and uncertain
which part of it[65] is true and which part is false. For nothing prevents
us from saying the contradiction with respect to any time, as for
instance 'it will be or it will not be', and each of the two parts
contained in it, as for instance 'it will be' or 'it will not be', is already
(ἤδη) true or false in a definite way (ἀφωρισμένως) with respect to
the present or past time. But those parts of a contradiction which
are said with respect to the future are not yet (ἤδη) true or false, but
they will be true or false. Let these things be sufficient against
(πρός) Nicostratus.[66]

One might think that the view of the Peripatetics is not clear. On
the one hand, the adverb ἀφωρισμένως (407. 10–11), which is to be
connected with ἢ ἀληθῆ ἢ ψευδῆ, suggests that Ammonius' doctrine
is hinted at here. On the other hand, contingent propositions con-
cerning past or present events are contrasted not with future
propositions which have an indefinite truth-value, as one might
expect, but rather with propositions which are not yet true or false.
That future contingent propositions are not yet true or false would
not be admitted by Ammonius, and this statement reminds us
rather of the traditional interpretation. Were the Peripatetics re-
ferred to by Simplicius followers of the traditional interpretation or
partisans of the position which Ammonius holds?

A little reflection shows that the second alternative is the right
one. Suppose that the Peripatetics embraced the traditional inter-
pretation. If *A* is a future contingent proposition, the principle of
bivalence cannot hold for *A*. But Simplicius at the beginning of our
passage says that according to the Peripatetics 'the contradiction
regarding the future is true or false', and this statement can only
mean that (PB) applies also to future contingent propositions.
Moreover, if the Peripatetics had adopted the traditional interpre-
tation, they would have held the same view as Nicostratus. But the
position of the latter is clearly opposed by Simplicius to the view of
the Peripatetics.[67] The conclusion is that the Peripatetics did not
embrace the traditional interpretation. How can we then explain
the view which Simplicius attributes to them with respect to future

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[65] Adopting Kalbfleisch's suggestion, I read at 407. 7 πότερον δὲ ἔσται μόριον αὐτῆς
ἀληθές instead of . . . αὐτῶν ἀληθές. Cf. 407. 9–10.   [66] *In Cat.* 407. 6–14.

[67] This remark has also been made by Sharples, 'Alexander of Aphrodisias, *de
Fato*: Some Parallels', 263.

contingent propositions? In what sense are these propositions not yet true or false? The question is easily answered, if we admit that "not yet true or false" means "not yet definitely true or false", i.e. if we understand "*ἀφωρισμένως*" to be connected to *ἤδη μὲν οὐκ ἔστιν ἢ ἀληθῆ ἢ ψευδῆ* at 407. 12–13. In this way the Peripatetics must be taken as representatives of the view defended by Ammonius.

Unfortunately, Simplicius does not tell us who the Peripatetics holding the same view as Ammonius are. Nor does he give us any hint towards identifying them. One might think that the Peripatetics were led to formulate their doctrine as a reaction to the position put forward by Nicostratus. If so, we would have a *terminus post quem* for the origin of Ammonius' view, and we might suppose that it was created before Porphyry in a Peripatetic milieu after the middle of the second century AD. The name of Alexander of Aphrodisias comes at once to mind. But Simplicius' words establish neither the starting-point nor the consequences of this interpretation. He exploits the Peripatetic view against Nicostratus to show that his position is not the only possible one. But this does not mean that the Peripatetics themselves elaborated their conception to avoid Nicostratus' view. To make things worse, the position of Alexander about future contingents which is known to us from his remaining works is far from being clear. We cannot examine this question here. It is sufficient to remember that some scholars who have studied this problem at length are inclined to think that Alexander was rather near to the traditional interpretation, although he is never explicit on this point.[68] Therefore, no relevant clue can be extracted from the Simplicius passage to find an answer to our question.

There is, however, another text which has led some scholars to seek the origin of Ammonius' doctrine among the Peripatetics near Alexander.[69] I refer to a passage in the *Quaestiones* traditionally attributed to Alexander but in fact made up of rather heterogen-

[68] See ibid. 264; Sharples, *Alexander of Aphrodisias on Fate*, with trans. and comm. (London, 1983), 11–12, and also Sorabji, *Necessity, Cause and Blame*, 92–3 and esp. 93 n. 5; D. Frede, 'Could Paris (Son of Priam) have chosen Otherwise? A Discussion of R. W. Sharples, *Alexander of Aphrodisias: 'De Fato'*, *Oxford Studies in Ancient Philosophy*, 2 (1984), 286.

[69] See Frede, *Aristoteles und die 'Seeschlacht'*, 26; Sharples, 'Alexander of Aphrodisias, *de Fato*: Some Parallels', 264; id., 'An Ancient Dialogue on Possibility: Alexander of Aphrodisias, *Quaestio* 1. 4', *Archiv für Geschichte der Philosophie*, 64 (1982), 38–9; Sorabji, *Necessity, Cause and Blame*, 93 n. 10.

eous materials.[70] This is true especially for the *Quaestio* which interests us, i.e. *Quaest.* I. 4.[71] In the last part of it a hint is made at a doctrine which is prima facie similar to Ammonius' position. There are two passages where ἀφωρισμένως is used in connection with the truth and falsity of a contradictory pair of future contingent propositions. The first of them runs as follows:

[L]   And further, if that is possible from which, if it is supposed that it is the case, nothing impossible results; and if, from everything of which the opposite is truly predicted, there results, if it is supposed that it is the case, something impossible, i.e. that the same thing both is and is not at the same time; then none of those things of which one part of the contradiction referring to the future is true definitely (ἀφωρισμένως ἀληθές ἐστιν) would be the case contingently. But they say that in all cases one part of the contradiction is true definitely (ἀφωρισμένως ἀληθὲς εἶναι).[72]

The Greek is in a rather poor condition and it is not very easy to follow the development of the argument in favour of determinism outlined here. The main idea seems to be that if a contingent proposition $P(k)$ is definitely true before k, then it is necessary, because the hypothesis that $\neg P(k)$ is true entails a contradiction. What it is important to stress is that in the last lines of the passage a sort of principle of bivalence is laid down, which can be represented in the following way:

(PB*) $T_{D*}(\ulcorner A \urcorner) \vee T_{D*}(\ulcorner \neg A \urcorner)$,

where, of course, "$T_{D*}(\ulcorner A \urcorner)$" stands for "$A$ is definitely true". The crucial point is to see whether the predicate "definitely true" which is mentioned here is the same as the predicate used by Ammonius, i.e. whether "T_{D*}" can be identified with "T_D". The simple fact that

[70] On the *Quaestiones*, see R. W. Sharples, 'The School of Alexander?', in Sorabji (ed.), *Aristotle Transformed*, 83–111. In particular, for *Quaest.* I. 4, which will be at issue here, see I. Bruns, 'Studien zu Alexander von Aphrodisias, I: Der Begriff der Möglichen und die Stoa', *Rheinisches Museum für Philologie*, NS 44 (1889), 619–30; M. Mignucci, 'Pseudo-Alexandre critique des Stoïciens', *Proceedings of the World Congress on Aristotle*, Thessaloniki, 7–14 Aug. 1978, i (Athens, 1981), 198–204; Sharples, 'An Ancient Dialogue on Possibility', 23–38.

[71] See Sharples, 'An Ancient Dialogue on Possibility', 24–5.

[72] *Quaest.* I. 4, 12. 13–18. Following Bruns, I delete μή at 12. 13 and I add συμβήσεται at 12. 15. For an analysis of this passage, see also Bruns, 'Studien zu Alexander von Aphrodisias', 627–8. The translation is taken from Sharples, 'An Ancient Dialogue on Possibility', 36–7, with one change.

the expression "definitely true" is used is not a sufficient reason to give an affirmative answer to our question. It might be that "*ἀφωρισμένως ἀληθές*" used in the *Quaestio* has the same meaning as Ammonius' expression, but that is neither necessary by itself nor imposed by the context. "*ἀφωρισμένως ἀληθές*" might simply refer to what is *already* true in contrast to what is *not yet* true. From this point of view the deterministic argument would have its main point in the premiss that even future contingent propositions always have a truth-value. But if $P(k)$ is true even before k, then it is always true and therefore necessarily true.[73]

The answer of the author of the *Quaestio* to the deterministic argument contains the other occurrence of "*ἀφωρισμένως ἀληθές*". He says:

[M] But if it is alike possible for the same thing to come to be and not to come to be, how is it not absurd to say, in the case of these things, that one part of the contradiction uttered beforehand is true definitely (*ἀφωρισμένως ἀληθές*), and the other false, when the thing in question is alike capable of both?[74]

Unfortunately, even here it is not clear what "*ἀφωρισμένως ἀληθές*" means. The core of the answer to the deterministic argument is that it is inconsistent to maintain that every proposition is definitely true or definitely false and that there are contingent events. If $P(k)$ is always true in a definite way, then there is no possibility that the event denoted by it does not obtain. It is absurd to reject the existence of contingent events. Therefore, it cannot be admitted that every proposition always has a definite truth-value. But the question here is: shall we infer that future contingent propositions have an indefinite truth-value or must the conclusion rather be that these propositions have no truth-value at all? If we give the first answer, we have Ammonius' view and we are entitled to say that the doctrine was born among the pupils of Alexander. On the other hand, if we prefer the second answer, we have to reckon Alexander's school among the supporters of the traditional interpretation, and the problem of the origin of Ammonius' theory is left in the dark. Needless to say, we would like to embrace the first answer,

[73] Kretzmann, 'Boethius and the Truth about Tomorrow's Sea-Battle', 67–8 expresses similar worries about the interpretation of the passage.

[74] *Quaest.* 1. 4, 13. 2–6. Here again I follow Sharples' translation ('An Ancient Dialogue on Possibility', 37).

because it gives a nice solution to our problem. But it would be unfair to adopt it simply because it offers an explanation of what we are looking for. I do not see any reason to prefer the first interpretation to the second. In our passage it is not said to what ἀφωρισμένως ἀληθές is opposed, and it might be contrasted either to what is indefinitely true or to what is not yet true. Consequently, the author of the *Quaestio* might equally be a forerunner of Ammonius or a follower of Nicostratus.

Although we do not know where his view ultimately comes from, Ammonius' doctrine is far from uninteresting in an historical and philosophical perspective. Its commitment to an atemporal theory of truth, on the one hand, and its exploiting of the notions of necessity and possibility, on the other, clearly show how ample the range of the problems involved is and how modern they are.[75]

Rationality

RICHARD SORABJI

THE DENIAL OF RATIONALITY

I want to tell the story of the crisis produced in philosophy by a single claim about rationality: Aristotle's claim that animals lack it. And since belief (*doxa*) implies rationality, he denied them belief as well.[1] But how, then, do animals cope with the world? To explain this, Aristotle had to expand the content of sense perception, which in *Theaetetus* 185–7 Plato had contracted to the mere registering of whiteness, sweetness, and other sensible qualities. And he had to reclaim appearance (*phantasia*) as a perceptual faculty, where Plato had classified appearance and illusion as kinds of belief (*doxa*).[2]

But in re-expanding the content of sense perception, which animals do possess, Aristotle had to avoid turning sense perception into belief, which they do not. Similarly for emotion, experience, memory, and foresight, if animals possess these, it must be shown why these capacities do not involve reason or belief. And these demarcations in turn throw light on the nature of rationality. Thus every part of the philosophy of mind was affected by Aristotle's claim. The important investigations of ancient scepticism in recent years, notably by Jonathan Barnes, Myles Burnyeat, Michael Frede, and Gisela Striker, have shown it to be a rich source of distinctions in the philosophy of mind. The denial of rationality to animals was another.

The problem confronted not only Aristotle, but also the Stoics, who, like him, denied rationality to animals. It confronted some,

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[1] *De An.* 3. 3. 428ᵃ18–24.
[2] *Sph.* 263e–264d; *Rep.* 603a.

but not all, of the Epicureans, for they varied on whether to allow
reason or intellect to animals.[3] I am not quite persuaded by Michael
Frede's suggestion[4] that they turned reasoning into a mere function
of memory, although he has shown that others did, and that would
have put reasoning within the compass of animals. Those philoso-
phers who did grant reason and intellect to animals, typically the
Platonists, the Pythagoreans, and some more independent mem-
bers of Aristotle's school, often exploited the difficulty of dis-
entangling other mental powers from rationality.

Not only in philosophy of mind, but also in ethics, the denial of
rationality had repercussions for our treatment of animals, as we
shall see. And these repercussions have lasted to this day.

For Plato there was not yet a problem. In many works he im-
plied, through his belief in transmigration of souls, that animals
have a rational part of the soul.[5] Why do foxes have elongated
heads? To accommodate the movements of the rational part dis-
torted in a previous human incarnation. The rational part is not
said to be missing, merely unused, and not even this is said of birds.[6]
Even if reason (*logismos, logos, logistikon*) is sometimes denied to
animals,[7] this does not matter. For Plato believes that the non-
rational parts of the soul are capable of beliefs. This is crucial, to
take one example, to his analysis in the *Republic* of self-control as
involving the rational and non-rational parts of the soul having the
same beliefs (*homodoxein*) about which should rule.[8] Only the
Theaetetus evinces any other view, when it denies reasoning
(*analogismata*) about what is the case (*ousia*), and by implication
belief, to some animals.[9] But it is not quite clear that it means all
animals. And the *Laws*, written later than the *Theaetetus*, allows

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[3] Denial of reason (*logos*): Hermarchus *ap.* Porphyrium, *Abst.* 1. 12. Denial of
thinking (*noēsis*) and belief (*doxa,* also *pseudodoxia*): Philodemus, *On the Gods* 12.
17; 13. 6–7, 39; 14. 34, though animals have something analogous (*analogon*) to
foresight (*proorasis*) and expectation (*prosdokia*), 13. 16–21; cf. for other analogous
states, 11. 19, 28, 34; 13. 30; 14. 29. But Lucretius grants animals mind (*mens,
animus*), 2. 265, 268; 3. 299.

[4] Michael Frede, 'An Empiricist View of Knowledge: Memorism', in Stephen
Everson (ed.), *A Philosophical Introduction to Ancient Epistemology* (Cambridge,
1990).

[5] *Tim.* 42b d, 91d–92c; *Phd.* 81d–82b; *Rep.* 620a–d; *Phdr.* 249b.

[6] *Tim.* 91d–92c. For further evidence, see *Rep.* 376b; *Plt.* 263d.

[7] *Smp.* 207a–c; *Rep.* 441a–b; *Laws* 963e; but contrast 961d.

[8] *Rep.* 442b–d; further evidence at 574d, 603a; *Phdr.* 255e–256a; *Tim.* 69d, 77a–c;
Laws 644c–d, 645a.

[9] *Tht.* 186b–c. I thank Myles Burnyeat for the reference.

beliefs that are not connected with reason,[10] and animals that have intellect (*nous*).[11]

It was Aristotle, then, who produced the crisis, by denying animals both reason and belief. Sense perception, as analysed in Plato's *Theaetetus*, will not be enough for them. It is no use their apprehending sweetness, for example, if they cannot ascribe the sweetness to a particular subject or direction. How would they be able to pursue it in this direction rather than that? They need, in other words, to be able to predicate the sweetness of something, and predication is just what Plato's *Theaetetus* removes from sense perception. Aristotle has to restore it.

It is no good appealing to Aristotle's well-known gradualism in biology, in the hope of finding that he does not draw such a sharp line between animals and men, but allows them a smidgen of reason after all. On the contrary, the principal gradualist passage, *History of Animals* 8. 1, is most revealing. The continuity between man and animal exists at the level of temperaments. But when it comes to the intellectual capacities, technical knowledge (*tekhnē*), expertise (*sophia*), and understanding (*sunesis*), the difference is not one of degree, but of analogy. That is to say, as these capacities stand to man, so some *other* similar capacity (and he calls it other: *hetera*) stands to certain animals.[12] Evidently, animals can claim only something different. Beside such programmatic statements as this and the opening of the *Metaphysics*, it would be perverse to draw conclusions from the casual turns of phrase which any writer finds himself adopting when he talks of animals. If Aristotle refers in passing to technical knowledge and thought (*tekhnikos, dianoia, nous*), especially in *History of Animals* books 8 and 9, whose authenticity has recently been defended, this is to be understood in the light of the programmatic warning at the beginning, as is sometimes emphasized by an 'as if'.[13] Even in his early work, the *Protrepticus*, I doubt if Aristotle allowed animals glints (*aithugmata*: a Porphyrian word) of reason (*logos*), since I prefer Jaeger's hypothesis that the fragment[14] belongs to Porphyry, not Aristotle.

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[10] *Laws* 644c–d, 645a.   [11] *Laws* 961d.   [12] *HA* 8. 1. 588ª18–31.

[13] *HA* 9. 48. 631ª27.

[14] Taken from Iamblichus, *Protrepticus* 36. 7–13. Pistelli, printed as Aristotle's, in line with the Bywater–Düring hypothesis, on p. 2407 of the *Oxford Translation of Aristotle*, rev. Jonathan Barnes (1984), which thereby departs from the original edition by Sir David Ross.

The whole of the *Nicomachean Ethics* is premissed on the hypothesis that reason is unique (*idion*, not *koinon*) to man, or at least, to distinguish God, practical reason.[15]

THE EXPANSION OF PERCEPTION

Accordingly, Aristotle does for animals exactly what we should expect. In what is surely conscious opposition to Plato's *Theaetetus*, he insists that much more is grasped by sense perception than Plato's sweetness and whiteness. First, contrary to Plato's claim at *Theaetetus* 185a, there are qualities perceptible by two or more senses in common. Aristotle calls them common qualities (*koina*):[16] movement, rest, shape, extension, number, and unity. Next, the properties which Plato himself calls common (*koina*) at *Theaetetus* 185b, such as likeness and difference, are not grasped, as Plato claims, by reasoning and belief (*sullogismos*, *doxazein*). Rather, says Aristotle, it must be by perception that we perceive that white and sweet differ, for they are perceptibles.[17] This already involves predication, for Aristotle is talking about perceiving *that* something is the case. And there are many other examples in Aristotle of such propositional perceiving. One can perceive that the thing is this or something else, whether the white thing is a man or not, that the approaching thing is a man and is white, what the coloured or sounding thing is, or where, that something is pleasant, that we are perceiving, walking, thinking, living, existing, in dreams that we are sleeping, whether this is bread, whether it is baked, 'this is sweet', and 'this is drink'.[18] Moreover, the lion perceives that the ox is near and rejoices because, or that, he will get a meal.[19] The animal example is not an aberration, but is prepared for by Aristotle's general account of perception.

Aristotle does not stop there. He devotes a chapter to appearance (*phantasia*), and one appearance which one might call percep-

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[15] *EN* 1. 7. 1097ᵇ33–4, 1098ᵃ3.

[16] *De An.* 2. 6. 418ᵃ17–18; 3. 1. 425ᵃ16; *Sens.* 442ᵇ5.

[17] *De An.* 3. 2. 426ᵇ12 15; cf. 3. 7. 431ᵃ20–ᵇ1; *Somn. Vig.* 455ᵃ17 18.

[18] *De An.* 2. 6. 418ᵃ16; 3. 2. 425ᵇ12; 3. 3. 428ᵇ21–2; 3. 6. 430ᵇ29–30; *EN* 3. 3. 1113ᵃ1; 7. 3. 1147ᵃ25 30; 7. 6. 1149ᵃ35; 9. 9. 1170ᵃ29–ᵇ1; *Insomn.* 1. 458ᵇ14–15; 3. 462ᵃ3; *MA* 701ᵃ32–3.

[19] *EN* 3. 10. 1118ᵃ20–3.

tual (not following Aristotle's terminology) is the appearance *that* the sun is only one foot wide.[20] It cannot detract from this clear example of a propositional appearance that Aristotle later goes on to contrast appearance with affirming or denying (*phasis, apophasis*), on the grounds that, unlike truth and falsity, it does not involve a combining of concepts (*sumplokē noēmatōn*). Aristotle has so often described appearance as liable to falsehood,[21] giving the appearance that the sun is a foot wide as one example, that I take him to be referring in the later passage to only one type of appearance, the post-perceptual contemplation of mental images.

CONCEPTS WITHOUT RATIONALITY

It may seem surprising that the lion should perceive that the ox is near, if it does not have the universal *concept* of an ox. And Aristotle does say that animals lack universal apprehension (*katholou hupolēpsis*) in the *Nicomachean Ethics*.[22] But to this there are two answers. First, he might have sided with those who say that one can perceive a mountainside as having a certain crinkly shape without having the concept of a shape as complex as that. Secondly, he does in any case exhibit a more generous mood about animals when he says that they have a little experience (*empeiria*),[23] and I take it he means a little, not none. This is relevant, because experience is equated, on the most natural reading, with a universal stabilized in the soul.[24] Aristotle's discussion of universals here is sometimes suspected of 'vacillating' between universal concepts and universal propositions.[25] But in the context of our acquisition of universals, I doubt if this distinction is relevant. Aristotle has given us examples of what he means in the treatise in question. To acquire the concept of lunar eclipse *is* to acquire the proposition that it is a certain kind of loss of light by the moon. If Aristotle sometimes denies that the propositions of experience are universal, this is because universal-

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[20] *De An.* 3. 8. 432^{a}10–12; cf. 3. 7. 431^{a}8–12.

[21] *De An.* 3. 3. 428^{a}12; ^{a}18; ^{b}2: ^{b}17; ^{b}29. [22] *EN* 7. 3. 1147^{b}5.

[23] *Metaph.* 1. 1. 980^{b}26–7.

[24] *APo.* 2. 19. 100^{a}6–8.

[25] Jonathan Barnes, *Aristotle's 'Posterior Analytics'*, trans. with notes (Oxford, 1975), 249, 260, citing F. Solmsen, *Die Entwicklung der aristotelischen Logik und Rhetorik* (Berlin, 1929), 95–101.

ity is a relative term. The propositions lack universality in comparison with those of technical understanding (*tekhnē*).

If animals have a little experience, then, to some extent, they will be able to form universal concepts. And Aristotle shows very cunningly how this is possible on the basis of sense perception and memory alone. For experience, or the most rudimentary universal in the soul, as I understand the text, simply *is* many memories of the same thing.[26] Many memories of oxen, for example, are the possession of a rudimentary concept of an ox. Aristotle's account of how a universal concept can thus be acquired empirically is an alternative to Plato's account of its being recollected by the rational mind from a previous incarnation. It extends still further what is allowed to animals: not only propositional perception, but also rudimentary concepts not yet involving rationality.

I have argued elsewhere[27] that the Stoics made some of the same concessions to animals as Aristotle. They did not allow them concepts, but they did allow them propositional appearances. Chrysippus' dog has the appearance of there being no smell down this path and no smell down that path, before it 'virtually' (*dunamei*) reasons that its quarry has gone down the third path. The dog cannot itself conceptualize or verbalize these appearances, but they are appearances which *we* conceptualize and verbalize as propositions. Michael Frede may wish to take issue with me on this interpretation. I will only add here that Chrysippus' dog had a long history. James I, on hearing of it at a Cambridge debate, responded that his hound could summon others. He was told in reply that that was by royal prerogative.[28]

PERCEPTUAL APPEARANCE
WITHOUT RATIONALITY

Aristotle and the Stoics next had to face this problem: if there can be a perceptual appearance (*phantasia*) that the sun is a foot wide, how does it fall short of belief (*doxa*) that it is a foot wide? Aristotle argues that it obviously does, contrary to Plato's view in

[26] *APo.* 2. 19. 100^{a}5–6; *Metaph.* 1. 1. 980^{b}29–30.
[27] 'Perceptual Content in the Stoics', *Phronesis*, 35 (1990), 307–14.
[28] See William J. Costello, *The Scholastic Curriculum at Early Seventeenth Century Cambridge* (Cambridge. Mass., 1958), 24–6.

the *Sophist* and *Republic*, because we may be convinced that the sun is larger than the inhabited earth.[29] This is surely a conclusive argument. Further, Aristotle suggests two ways in which appearance falls short. The passage has been much misunderstood: the Oxford and Loeb translations make it unintelligible, and several scholars have wrongly considered the second reason as merely an alternative version of the first. It runs as follows:

> It remains then to see if [appearance (*phantasia*)] is belief (*doxa*). But (i) belief involves conviction (*pistis*), since in believing one cannot fail to be convinced (*pisteuein*) by what one believes, whereas conviction is found in no beasts (*thēria*), appearance in many. Furthermore, (ii) all belief involves conviction, conviction involves having been persuaded (*pepeisthai*) and persuasion (*peithō*) involves reason (*logos*). Yet whereas appearance is found in some beasts, reason is not.[30]

The second of these two suggested differences goes a little far. For it is not obvious that all believing involves being persuaded. But the idea becomes slightly less extravagant when we realize that this is not a rhetorical criterion, as it has been called, involving persuasion by *others*. Aristotle will include being persuaded by oneself. And he is all the more likely to do so in the wake of the *Theaetetus*' definition of belief as a stage in the solitary process of asking oneself questions and giving oneself answers.

The Stoics agree that perceptual appearance (*phantasia*) falls short of belief (*doxa*), and add that it also falls short of something they value more highly, namely perception (*aisthēsis, sensus*) proper. But the reason they give is a new one, that these last two states involve rational assent (*sunkatathesis, adsensio*) to the appearance.[31] Alexander of Aphrodisias, however, followed by Simplicius, reads this Stoic reason back into Aristotle.[32]

Where does the Stoic insistence on rational assent leave animals? Our reports on the Stoics are divided between those which say that animals always assent to appearance and those which say they

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[29] *De An.* 3. 3. 428^{b}3–10.   [30] *De An.* 3. 3. 428^{a}18–24.

[31] For belief (*doxa*) as involving assent, or supposition (*hupolēpsis*), which itself (Plutarch. *Sto.Rep.* 1056a) involves assent, see Plutarch. *Col.* 1122a–f; Stobaeus, *Ecl.* 2. 111. 18–112. 8W (= *SVF* iii. 548). For perception as involving assent, see Porphyry, *On the Soul ap.* Stobaeum, *Ecl.* 2. 349. 23W (= *SVF* ii. 74); Cicero, *Acad.* 2. 37, 108; Aëtius 4. 8. 12 (Dox.Gr. 396. 3–4; *SVF* = ii. 72).

[32] Alexander, *de An.* 67. 16–20; Simplicius(?), *in de An.* 3. 211. 22–7.

never assent. The usual approach is to sweep one set of texts under the carpet. But in fact the two descriptions can be understood as alternative ways of saying the same thing, namely that animals cannot *withhold* assent. This could be expressed by saying that they always assent, or that assent is not in their repertoire, so they never do. At least, the first way of talking will be as acceptable as the second in non-Stoic eyes. The Stoics themselves would complain that assent is the special human prerogative which makes our actions 'up to us'. Moreover, since animal assent could not be given by reason, it would amount to no more than an impulse to follow appearances.

The conclusion on either description will be that animals never progress beyond appearance either to belief or to perception proper. But at least they will be able to cope with the world through perceptual appearance, despite their lack of rationality.

OTHER CAPACITIES WITHOUT RATIONALITY

Memory

The Stoics had a whole programme for showing that animal capacities could be explained without postulating rationality. Memory proper involves reflection (*consideratio*, *deliberatio*) and assent.[33] Animal memory, by contrast, is not memory proper, but mere perceptual recognition. The horse remembers the road when he is on it, but not when he is in his stable.[34]

Aristotle had enabled non-rational animals to remember, by a different method. It is not just animal memory, but memory in general that belongs to the perceptual part of the soul. He thinks it one of his major tasks to establish this.[35] And he distinguishes deliberately reminding oneself as not being a capacity of animals, because it is too like reasoning.[36]

Emotions

The Stoic programme of redefinition continues with the emotions. Animals do not display genuine anger, according to Seneca. It

[33] Calcidius, *in Tim.* 220; Cicero, *Acad.* 2. 38.   [34] Seneca, *Ep.* 124. 16.
[35] *Mem.* 1. 449^b4–5, 449^b28–450^a25, 451^a14.   [36] *Mem.* 2. 453^a8–14.

merely looks as if they do, because they display the first two of the four stages involved in genuine anger: the appearance (*species*) of injustice and the involuntary reaction (*impetus*) of the mind. This is not genuine anger, because that involves thirdly the voluntary and rational assent of the mind to the appearance, and fourthly an uncontrollable surge that carries us away. The mock anger of animals involves appearance, but not the rational activity of assent.[37]

There were others who could or did define the emotions, though not on account of animals, in terms of mere appearance. Aristotle's own definitions of anger and fear in book 2 of the *Rhetoric* oscillate between reference to the *appearance* of past or future evil and *belief* in such evil.[38] He does not have to make up his mind, because he is thinking not of animals, but of humans in the lawcourts. The ancient commentators on Aristotle, however, had an explicit disagreement. Aspasius rejects Andronicus' account of the emotions. You can experience lust on the basis of mere appearance (*phainesthai*), even before there has been assent and apprehension (*hupolēpsis*). And similarly, you can enjoy wit without apprehending that anything good has happened even after the event.[39]

One of the Stoics, the independently minded Posidonius, offered a different reason for defining emotions in terms of appearance (*phantasia*). Our irrational part could not be stirred by reason without the aid of something like a picture (*anazōgraphēsis*).[40]

Intentions

In the same vein, the Stoics downgrade the so-called practical impulses—intention, preparation, etc.—as they occur in animals. The swallow only 'as it were' prepares its nest.[41]

Universals

Perceptual appearance, memory, practical impulses, and emotion, or in some cases their mock analogues, can all then exist in animals

[37] Seneca, *On Anger* 1. 3, 3–8; 2. 3–4. I take it that the appearance (*species*) conceded to animals in the first passage is the appearance of injustice discussed in the second, despite Seneca's denial elsewhere that animals recognize goodness.

[38] *Rhet.* 2. 2, 5.   [39] Aspasius, *in EN* 44, 33–45, 10.

[40] Posidonius *ap*. Galenum, *Platonis et Hippocratis Placita* (*PHP*) 5. 330, De Lacy, *CMG* v. 4. 1, 2.

[41] Plutarch, *Sollertia* 961e–f. repeated Porphyry, *Abst.* 3. 22.

in the absence of rationality. We have seen that the same is true, according to Aristotle, of the rudimentary universal concepts of experience. There were others who discussed whether animals can have access to universals. Galen claims that they can recognize the form (*eidos*) which is common (*koinon*) to all roads, or men, or donkey-drivers, or camels, and equally the form which is unique (*idion*) to this road or to Dion the donkey-driver. Even the donkey can do this, thought to be the stupidest of animals—though Galen's opponents may be stupider.[42]

One of the late Neoplatonist commentators, whether it is Simplicius or Priscian, takes up Aristotle's apparent denial of appearances (*phantasiai*) to the ant, bee, and grub. What Aristotle means, it is suggested, is that they have imprints (*tupoi*) only of food taken generally (*koinoteron*). Or bees may have the appearance of food in this grove, but not from this flower.[43] This text makes it explicit that mere appearance (*phantasia*) can be directed to universals, although they may be confused universals like those of children who call all men 'father'.

Platonists, of course, could freely grant animals access to universals, because they allowed animals to have rationality. There is even a tradition that Plato granted animals a natural intellect (*nous phusikos*) for grasping the Forms.[44] This may be an extrapolation from *Phaedrus* 249b–c, which allows that the soul of an animal can be reincarnated in a human, provided it has once seen and could recollect the Forms. The Middle Platonist text *Didaskalikos*, though not concerned with animals, gives an account of our concepts which could in principle make it still easier for animals to have universal concepts. It adapts to its own Platonic purposes an earlier Stoic account of reason (*logos*) as being a collection of deliberately cultivated conceptions (*ennoiai*) and naturally acquired preconceptions (*prolēpseis*).[45] In the Middle Platonist text, the naturally acquired preconceptions have become conceptions recollected from a previous incarnation and concerned with intelligibles. The cultivated conceptions have become conceptions acquired through sense perception and imprinted in memory, as if on the wax tablet of Plato's *Theaetetus*. Correspondingly, there

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[42] Galen, *de Methodo Medendi*, Kühn x. 132–4, 138–9.

[43] Simplicius(?), *in de An. 3* 209. 17 25, commenting on *de An.* 3. 3. 428ª10–11.

[44] D.L. 3. 15, drawing on Alcimus.   [45] *PHP* 5. 3. 1 = *CMG* 304 (= *SVF* ii. 841).

is a higher reason and a lower belief-type reason (*doxastikos logos*), each consisting of one of these two sets of conceptions.[46] Given that some Platonists were willing to grant recollected conceptions to animals, it would be even easier for them to grant the empirically acquired conceptions. None the less, a later Platonist, Hermeias of Alexandria, denies that this happens. He allows that humans can assemble in their minds (*sunathroizein en tēi dianoiāi*) the universal horse, after seeing individual horses, but he denies that animals can do the same.[47] And the *Didaskalikos* may also intend to deny animals reason.[48]

Inference

There is a final and extreme case of divorcing sophisticated mental capacities from rationality, although the original authors were not concerned with animals. We are indebted to Michael Frede for drawing attention to a group of empiricist doctors called memorists. Their point was partly a verbal one: they restricted the name of rationality to a set of syllogistic procedures which they regarded as useless. But they also had a substantial point: ordinary thinking, inferring, reflecting, believing, assuming, examining, generalizing, and knowing can all be done simply on the basis of memory.[49]

Although they did not, so far as I know, appeal to animals, the subsequent discussions of Leibniz and Hume did. According to Hume, all that animals need, and all that men need most of the time, is an association of ideas based on custom. They do not need reasoning in any stronger sense.[50] Leibniz had made an explicit comparison between the empiricist doctors of antiquity and animals. Neither have knowledge of cause and effect. They merely expect good or harm from the same thing in similar circumstances, and this requires only memory. But as regards man, Leibniz is on the opposite side. Man has rationality and so goes beyond the

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[46] *Didaskalikos*, ch. 4, in Hermann's Teubner, *Plato*, with Lawrence Schrenk, 'Faculties of Judgment in the *Didaskalikos*', *Mnemosyne*, 44 (1991), 347–63.

[47] Hermeias, *in Phdr.* 171. 10.

[48] *Didaskalikos* 178. 21–5, Hermann.

[49] Michael Frede, 'An Empiricist View of Knowledge'.

[50] David Hume, *Enquiry concerning Human Understanding*, 82–5; *A Treatise of Human Nature*, I. iii. 16.

universals of induction and experience to the scientific syllogisms of
Aristotle.[51]

THE INFLUENCE OF ANIMAL CONSIDERATIONS
ON THE PHILOSOPHY OF MIND

We can now look back and see the extent to which animal consid-
erations influenced the philosophy of mind. It can hardly be denied
that the Stoic redefinitions of memory and anger were driven by
these considerations and that the Stoic accounts of appearance,
self-consciousness, and (as we shall see) speech were influenced
by them. But it may be less obvious that there were similar
motivations at work already in Aristotle. One view might be that
animal considerations certainly dominated the analysis of memory,
but played no role in the expansion of perceptual content.[52] I think
that view would be wrong. The analysis of perception, no less than
the analysis of memory, forms part of a wider project. Aristotle
describes this project in the *de Anima* as being to say what the souls
of plant, animal, and human each are.[53] It is no accident, then,
that reference to animals permeates his discussions throughout the
psychological works. But since it has come as a surprise to me too
to notice how often this happens, I shall take a moment to give
examples.

One of the central concerns of Aristotle's treatise *On Memory* is
to show that memory, like appearance, belongs to the perceptual
part of the soul, and so is available to animals, unlike deliberately
reminding oneself. The chapter that distinguishes appearance from
thought, belief, and reason, *de Anima* 3. 3, mentions animals no less
than four times. It does so in order to say that only some (humans)
have thought (*phronēsis*); all perceive sensible qualities like hot,
cold, fluid, and dry; most, though not all, have appearances; none
other than man have conviction, persuasion, belief, or reason.[54]
Aristotle works both ways, appealing to animals to throw light on
mental capacities and to capacities to throw light on animals. This

[51] G. W. Leibniz, 'Extrait du Dictionnaire de M. Bayle, article "Rorarius", p. 2599
sqq. de l'édition 1702 avec mes remarques', in *Philosophische Schriften*, ed.
Gerhardt, iv. 524–54: 525–6.
[52] I am grateful to Jonathan Barnes for pressing this issue.
[53] *De An.* 2. 3. 414[b]32–3.   [54] *De An.* 3. 3. 427[b]6–8, 13, 428[a]10, 21–4.

happens not only in the chapters just mentioned; it happens too with the discussion of the springs of voluntary motion.[55] Equally, Aristotle explains by reference to animals the functions of the five senses, and which animals have which.[56] The treatises *On Sleep* and *On Dreams* both begin, like the treatise *On Memory*, by asking which part of the soul is involved,[57] and *On Sleep* determines that all animals sleep. The account in *Metaphysics* 1. 1 of cognitive development (perception, memory, intelligence, learning, appearance, experience, technical and scientific understanding) is built around the ascending mental capacities of animals and humans. The gradualist chapter, *History of Animals* 8. 1, is careful to distinguish the temperaments we share with animals from intellectual capacities, which we do not.[58] Aristotle's psychology is no different from his ethics, for there too the difference between man and animal is crucial.[59]

DO ANIMALS LACK REASON?

The whole effort to expand perception and to analyse mental capacities as independent of rationality is necessary for the sake of animals only if animals are really to be denied rationality. Naturally, the argumentative Greeks did not accept that denial on the mere say-so of Aristotle and the Stoics. Perception, memory, planning, and emotion were cited as proofs of animal reason,[60] which is why, as we saw, the Stoics reanalysed these. And a further issue was whether animals have speech.

Speech

Speech was a relevant issue, because Plato had defined thinking (*dianoia, dianoeisthai*) as silent inner speech (*logos*).[61] And a tradi-

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[55] *De An.* 3. 9. 432[b]19–26: since some sentient animals are stationary, this shows that perception is not enough to produce voluntary movement. *De An.* 3. 10. 433[b]29–3. 11. 434[a]12: in lower animals it is desire and one kind of appearance, but not deliberation, that is responsible for movement.

[56] *De An.* 3. 12. 434[a]27–[b]29; *Sens.* 1. 436[b]10–437[a]3.

[57] *Mem.* 1. 449[b]4–5; *Somn. Vig.* 1. 453[b]13; *Insomn.* 1. 458[b]1–2, 459[a]21–2.

[58] *Somn. Vig.* 1. 454[b]23–7.

[59] For determining the character of human happiness, *EN* 1. 7. 1097[b]33–1098[a]4.

[60] Plutarch, *Sollertia* 966b, 961a–f, repeated Porphyry, *Abst.* 3. 21–2.

[61] *Tht.* 189c–190a; *Sph.* 263e ff.

tion had grown up that speech and reason were just two sides of the same coin, *logos*, one being externally directed (*prophorikos*) and one internal (*endiathetos*). If it could be shown that animals had speech, then, one would have made it plausible, even if not conclusive, that they had reason.

The ancient denials of speech to animals began to look increasingly feeble, whether or not the conclusion was correct. Aristotle allowed some animals meaningful sound (*phōnē*, *sēmantikos psophos*, *semainein*),[62] and granted some birds articulate utterance (*dialektos*),[63] in other words segmentation (*diarthrōsis*) of utterance by the tongue.[64] This last concession is, however, qualified by an 'as if' (*hōsper*)—it is not clear why, since Aristotle does (erroneously) think they use their tongue for segmentation.[65] More understandably, he denies animals the use of names (*onomata*), because these depend on a convention,[66] and he denies them speech (*logos*).[67] Some Stoics began to admit that we do after all find articulation among animals. So the last-ditch position is that of Varro, who defends the Stoic denial that ravens and crows could be said to speak by denying that they have syntax. This is the purport of his derivation of the Latin word for speaking (*loqui*) from the Latin *locus*, a place, the idea being that to speak is to put words in the right *place*.[68] Exactly the same position has been reached in the modern scientific debate over whether chimpanzees are capable, not indeed of speech, but of sign language. It has been conceded that they may make individual signs, but protested that they lack syntax.[69] And mankind's uniqueness in possessing syntax is also maintained by the followers of Chomsky.

The best case for speech among animals is provided by Porphyry in his treatise *Abstinence from Animal Food*. Four arguments may be selected. First, animals understand our commands. So, on the Aristotelian account of communication, they must at least have the same appearances (*phantasiai*) as us in their minds. Secondly, they actually understand (unless Porphyry merely means that they parrot) *Greek*. I recently read that the British cavalry had ordered

[62] *De An.* 2. 8. 420ᵇ9–421ᵃ6; *Pol.* 1. 2. 1253ᵃ10–14.

[63] *HA* 4. 9. 536ᵃ21, ᵇ2–3, 11–12.   [64] *HA* 4. 9. 535ᵃ28–30.

[65] *HA* 4. 9. 536ᵃ21.   [66] *Int.* 2. 16ᵃ26–9.   [67] *Pol.* 1. 2. 1253ᵃ9–18.

[68] Varro, *de Lingua Latina* 6. 56 (= *SVF* ii. 143).

[69] H. S. Terrace, 'Animal Cognition: Thinking without Language', *Philosophical Transactions of the Royal Society of London*, B308 (1985), 113–28.

horses from Poland, and the anxiety was whether they would learn English. At first, I thought this was a joke, but then I realized that it was deadly earnest. If those horses do not learn English, the next British cavalry charge will not enjoy its customary success. Thirdly, it is no good saying that we don't understand animals: we don't understand Indians. This argument is not so lightweight as it sounds, and could fell more than one present-day objection to animal skills. Fourthly, Porphyry rather charmingly tells us that he had a tame partridge in Carthage, which made special Porphyry noises, and not the sounds of the partridge kind. This too might be built into an argument for what Grice calls speaker's meaning.[70]

Skills

A further set of arguments for animal rationality turned on their skills. And this consideration was answered partly by saying that their skills were stereotyped, and so natural, or, as we would say, instinctive rather than rational.[71] This first reply does not, however, take account of those skills which are distinguished as being learnt from man, such as the often-cited tricks of circus animals. A second reply was that plants also manage to do the right things, and this is obviously due to nature.[72] A third reply, the most controverted of all, was that animals do not learn. The answer to this was that the nightingale does learn its song,[73] and animals learn from their tamers.[74] Moreover, learning is inessential to rationality, since God doesn't learn.[75]

Some Stoics took a middle way which still denied rationality to animals, but without ascribing their skills to unconscious instinct. There was a certain consciousness of their own persons, liabilities, and powers which nature had implanted in them, but which none the less fell short of rationality.[76]

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[70] See Porphyry, *Abst.* 3. 5. 2; 3. 4. 4; 3. 3. 4; 3. 4. 7.

[71] Nemesius, *Nature of Man* 2. 19; Origen, *Against Celsus* 4. 87.

[72] Philo, *de Animalibus* 79; 94 5.

[73] Porphyry, *Abst.* 3. 6, relying on Aristotle, *HA* 4. 9. 536^{b}14–19.

[74] Plutarch, *Sollertia* 961d; *Gryllos* 992a; Porphyry, *Abst.* 3. 6; 3. 10; cf. 3. 15.

[75] Porphyry, *Abst.* 3. 10.

[76] Chrysippus, according to D.L. 7. 85. Seneca, *Ep.* 121. 7–10. Hierocles, *BKT* iv, von Arnim, I. 39–5. 7, on which, see Brad Inwood, 'Hierocles: Theory and Argument in the Second Century AD', *Oxford Studies in Ancient Philosophy*, 2 (1984), 151 83.

Virtue, Vice, and Madness

The presence in animals of virtue,[77] vice,[78] or madness[79] was also used as evidence of their rationality, and conversely their non-rationality was cited by the other side as evidence of their lack of virtue and vice.[80]

Inference

Both Aristotle and the Stoics are under strain when they deny inference to animals: Aristotle when he compares animal reactions to human practical syllogisms (*MA* 7. 701ª34), Chrysippus the Stoic when he describes his hunting-dog at the crossroads as only 'virtually' (*dunamei*) reasoning which way the quarry went (Sextus, *P.* 1. 69).

THE ETHICAL IMPLICATIONS

I turn now from philosophy of mind to ethics. The denial of rationality to animals soon became crucial for ethics, but only in the generation after Aristotle.

Reason and Responsibility

Aristotle himself allowed that animals could act voluntarily *(hekousiōs)*,[81] in other words,[82] could be liable to praise and blame for the individual things they did. Rationality was not required for moral responsibility, but only for the assessment of character as a whole, for that did depend on rational choice (*proairesis*). It has been doubted whether Aristotle could intend to hold an animal responsible,[83] e.g. a dog responsible for biting. But this, I think, would have been the position of Democritus,[84] who said that cer-

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[77] Philo, *de Animalibus* 62, 64; Plutarch, *Sollertia* 962a–963b; *Gryllos* 986f–992e; Sextus, P. 1. 67–8; Porphyry, *Abst.* 3. 11–13, 22–3.

[78] Philo, *de Animalibus* 66–70; Plutarch, *Sollertia* 962b–963a; Porphyry, *Abst.* 3. 13, 22–3.

[79] Plutarch, *Sollertia* 963c–f, repeated Porphyry, *Abst.* 3. 24.

[80] Seneca, *de Ira* 1. 3. 7.   [81] *EN* 3. 1. 1111ª25–6, ᵇ7–10; *MA* 11. 703ᵇ2.

[82] *EN* 3. 1. 1109ᵇ30–4; 5. 8. 1135ª19–23.

[83] Terry Irwin, 'Reason and Responsibility in Aristotle', in A. Rorty (ed.), *Essays on Aristotle's Ethics* (Berkeley and Los Angeles, 1980), 117–55: 125.

[84] Democritus, frags. 257–9 DK from Stobaeus, *Ecl.* 2. 4. 15–17.

tain animals might willingly do us a wrong (*adikein kai thelein adikein*) contrary to justice (*para dikēn*), and that in that case one would incur no penalty (*athōïos*) in killing them, but would have justice (*dikē*) on one's side. There is no need to doubt the apparent agreement of Aristotle. It was rather the Stoics who made responsibility depend on rationality. Action is preceded by a rational assent to the appearances which encourage us to act, and that assent is up to us.[85] Alexander read back the Stoic idea of rational assent into Aristotle here, just as he did for the criterion distinguishing appearance from belief. He claims that things are up to us only if we use our reason to decide, and this is possible only for man, who is capable of deliberate choice (*proairetikos*).[86]

Reason and Justice

Rather incongruously, although Aristotle allows that an animal may deserve praise, he none the less claims that there is no such thing as justice in relation (no *dikaion pros*) to horse or ox, because we have nothing in common (*koinon*) with them. Substituting cruelty for deserved praise would not be an injustice, presumably.[87]

The remark is made only in passing. And it was not until the Epicureans and Stoics that it was defended by making the animals' supposed lack of rationality the ground. On Epicurus' theory, there is no such thing as justice or injustice in relation to those animals or tribes (*hosa tōn zōïōn, tōn ethnōn hosa*) which do not make agreements to avoid causing or suffering harm.[88] If this still leaves it open whether some animals might make the relevant agreements, Epicurus' successor Hermarchus closes the door. The relevant agreements cannot be made with animals, precisely because they lack rationality (*logos*). Hence we cannot push justice as far as this (*mekhri toutou to dikaion exagein*).[89]

The same result is reached by another route through the Stoic theory of justice, which allows justice to be extended only to those whom we can regard, in Prime Minister Thatcher's phrase, as 'one of us'. That is roughly the meaning of *oikeiōsis*, the process of welcoming things as *belonging*. Chrysippus declares that no rela-

[85] Cicero, *de Fato* 42–3; *Acad.* 2. 37–9.
[86] Alexander, *de Fato* 33–4. 205, 8–206, 5.   [87] *EN* 8. 11. 1161^{b}1–3.
[88] Epicurus, *Principal Doctrines* 31–8, in D.L. 10. 150–3.
[89] Hermarchus *ap.* Porphyrium, *Abst.* 1. 12. 5–6.

tion of justice holds between us and animals (*mēden hēmin dikaion pros; nihil iuris cum*).[90] The reason is repeatedly said to be that animals are not rational.[91] Rationality is presented as both a necessary and a sufficient condition of our standing in a relation of justice to another,[92] and this in turn is connected with the view that *oikeiōsis* is the source of justice.[93] The idea is that rational beings like ourselves can extend *oikeiōsis* (and hence justice) only to other rational beings, although it is not denied that one animal can extend *oikeiōsis* to another. The lack of any relation of justice means that whatever we do to animals, it will not be a wrong or injustice.[94]

Reason and Christianity

We can see the precise point at which this Stoic theory became embedded in Christianity. St Augustine even represents Christ as endorsing Stoic theory. He takes up, though not by name, Porphyry's taunt that Christ was not much of a saviour, since he could not destroy the devils in the man possessed, but only transfer them to the wretched Gadarene swine, for whom he felt no concern, and who galloped over a cliff to their deaths.[95] Christ was quite right, says Augustine, for he saw that animals did not belong within the community of just dealing (*nullam nobis cum belluis et arboribus societatem iuris esse*). By his treatment of the Gadarene swine Christ showed it was mere superstition to refrain from the slaughter of animals.

Augustine takes up Stoic theory again in the same passage, when he says he would have considered the Manichaeans as at least observant, if their vegetarianism had been based (as it was not) on the recognition that animals die with pain. But in fact humans disregard that consideration, too, on the (Stoic) ground that ani-

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[90] Plutarch, *Esu* 999b (= *SVF* iii. 374); D.L. 7. 129 (= *SVF* iii. 367); Cicero, *Fin.* 3. 67 (= *SVF* iii. 371); Sextus, *M.* 9. 130 (= *SVF* iii. 370).

[91] Sextus, *M.* 9. 130 (= *SVF* iii. 370); Porphyry, *Abst.* 3. 19 (based on a lost work of Plutarch); Plutarch, *Sollertia* 963f–964b, repeated in Porphyry, *Abst.* 1. 4, 1. 6 (= *SVF* iii. 373); Porphyry, *Abst.* 3. 1; Augustine, *City of God* 1. 20; cf. Plutarch, *Esu* 999b (= *SVF* iii. 374).

[92] First three texts cited.

[93] Porphyry, *Abst.* 3. 19; Augustine, *City of God* 1. 20.

[94] Porphyry, *Abst.* 3. 1.

[95] Porphyry, *Against the Christians*, frag. 49, Harnack, from Makarios Magnes, *Apokritikos ē Monogenēs* 3. 4.

mals do not belong to the legally protected community (*societas legis*), precisely because they have no rational soul.[96]

Augustine addressed the subject also in his discussion of the commandment 'Thou shalt not kill'. This prohibits suicide, he says, but not the killing of animals, again for the (Stoic) reason that animals lack reason, and so have no rational community with us (*nulla nobis ratione sociantur*). Augustine infers that it is by a just arrangement of the Creator that their life and death is subordinated to our needs.[97] Like the UK Minister for Agriculture, who was recently promoting beef in the wake of an outbreak of mad cow disease, Augustine does not mention that the *death* of animals was subordinated to our needs in the Book of Genesis only *after* the Fall of Man, when everything had already begun to go wrong. The important point is that Augustine's premiss is the non-rationality of animals and the Stoic theory of justice.

This emphasis on rationality was not firmly established in Christianity before Augustine. Earlier in the fourth century AD, Lactantius could argue that animals were rational, and differed from man only in lacking knowledge of God.[98] In the thirteenth century, however, Thomas Aquinas cites Augustine's Stoic argument from the *City of God* as one of his main grounds for permitting the killing of animals.[99] Moreover, he draws on Aristotle's ideas to make the chasm between humans and animals even larger. According to Aristotle, he says, intellectual understanding (*intelligere* = *nous*) is the only operation of the soul that is performed without a physical organ. Thomas infers that only human souls, not animals ones, can be immortal.[100]

The excessive stress on rationality in this ethical context was taken over by Christianity from the Greeks. To us now it may seem ethically more relevant whether animals suffer than whether they have reason. But it was Bentham in the late eighteenth century who made that point.[101] The Greek debate on our treatment of animals centred on the question of their rationality. The earliest explicit philosophical argument I have found that bases their claim to just

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[96] Augustine, *On the Manichaean and Catholic Ways of Life* 2. 17. 54, 59.

[97] Augustine, *City of God* 1. 20.   [98] Lactantius, *Divine Institutes* 3. 10.

[99] Thomas Aquinas, *Summa Theologiae* 2. 2, q. 64, a. 1.

[100] Ibid. 1, q. 75, a. 3 respondeo; *Contra Gentiles* 2. 82.

[101] Jeremy Bentham, *Introduction to the Principles of Morals and Legislation* (1789), ch. 17.

treatment on their liability to pain and terror is in a passage of
Porphyry (AD 232–309), apparently drawn from a lost discussion by
Plutarch (*c.* AD 46–120). Resisting the sorites objection that, if we
spare animals, we will have to spare vegetables, Porphyry answers
that animals differ from plants in that they are conscious
(*aisthanesthai*), can feel pain and terror (*algein, phobeisthai*), be
harmed (*blaptesthai*), and so unjustly treated (*adikeisthai*).[102] It was
also in the eighteenth century, a little earlier than Bentham, that
Hume downgraded rationality by making reasoning a mere asso-
ciation of ideas open equally to animals.[103] I have mentioned that
even he was echoing a minority Greek tradition, that of Michael
Frede's memorists. But the central Greek debate agreed on the
importance of rationality and took the issue to be only whether
animals shared it.

THE SHIFTING CONCEPT OF REASON

A final question remains. It was not only other psychological con-
cepts (perception, appearance, belief, memory, emotion, experi-
ence, and concept acquisition) that shifted under pressure from the
concept of rationality. The concept of rationality itself shifted,
though not necessarily under similar pressures. I should finish with
a sketch of some of the main shifts.

The concept of the rational part of the soul (*to logistikon*) is
introduced by Plato in the *Republic* as the part with which the soul
reasons (*logizetai*). It forbids us to drink contaminated water, and
counteracts illusion by measurement. It does so by a process of
reasoning (*logismos*).[104]

Aristotle introduces radical changes into Plato's concept. First,
as I see it, he insists that desire, even rational desire, should be
separated out as a capacity distinct from reason, as also should
sense perception.[105] Next, belief (*doxa*) should all be gathered
under the heading of reason, a point less commonly noticed, but by
now familiar to us.[106] Thirdly, Aristotle sometimes distinguishes

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[102] Porphyry, *Abst.* 3. 19.   [103] Hume, *Enquiry*, 82–5; *Treatise*, I. iii. 16.
[104] *Rep.* 439c d; 602d 603b.
[105] *De An.* 3. 9. 432ª22–ᵇ7. For a different interpretation, see below.
[106] *De An.* 3. 3. 428ª18–24, trans. above.

reason (*logos*), as something involving steps of reasoning, from the single act of intellectual vision, or, as I would prefer to say, spotting (*nous*).[107] The latter is the heir to *noēsis*, Plato's intellectual intuition of the Forms.[108] But Aristotle does not hold firmly to the distinction and is sometimes ready to interchange the terms *nous* (intellect) and *logos* (reason).[109]

These three moves of Aristotle's shift the boundaries of the concept of reason. But he also draws distinctions within the concept, as he must do if he is to present reason as man's defining characteristic. It is practical, not theoretical, reason[110] which distinguishes man from God: the terminology is Aristotle's own coinage. Further, men do not all possess right reason (*orthos logos*),[111] a term Aristotle takes from others. Reason is merely the ability to think, whether correctly or incorrectly. It includes the holding of beliefs of which we have persuaded ourselves without much that could be recognized as reasoning. Admittedly, not all men can reason things out for themselves (slaves cannot). But they can listen to the reason of others.[112] And reason includes not only thinking things out, but also listening to reason.[113] Plato was wrong to allot the latter to the non-rational, 'spirited' part of the soul.[114] And he was also wrong to say that some adults and all babies lack reason.[115] In fact, the rational powers of babies are merely incomplete (*ateles*).[116]

In separating desire from reason, as I believe Aristotle does in *de Anima* 3. 9, he is rejecting the view taken by himself in earlier works and by some members of Plato's Academy, that the rational part of the soul (*logistikon*) incorporates a rational desire (*boulēsis*). The result, if I am right, is to make reason a neutral instrument that can be used well or badly, rather than one whose natural tendency is in the direction of wisdom. The latter conception of reason has been ascribed by Michael Frede to the Ancients

[107] *EN* 6. 8. 1142ᵃ25 6; 6. 11. 1143ᵃ35–ᵇ5; 7. 8. 1151ᵃ17–18. In rendering this 'spotting', I am not ascribing to Aristotle any infallible *method* of spotting.

[108] *Rep.* 511d–e.

[109] Besides the straight interchanging of terms, we find *nous* treated as that with which the soul reasons, or alternatively as falling under reason.

[110] *Pol.* 7. 14. 1333ᵃ25. [111] *EN* 2. 2. 1103ᵇ32; 6. 13. 1144ᵇ23.

[112] *Pol.* 1. 5. 1254ᵇ20–3.

[113] *EN* 1. 7. 1098ᵃ3–5; 1. 13. 1102ᵇ30–1103ᵃ3; *EE* 2. 1. 1219ᵇ27–31. This involves at least 'participating' in reason, and in a sense (1102ᵇ3–1103ᵃ3) 'having' it.

[114] *Rep.* 440c–441a. [115] *Rep.* 441a–b. [116] *Pol.* 1. 13. 1260ᵃ12–14.

in general, and this is illuminating for some cases.[117] But I rather doubt if the mature Aristotle would agree. In *Nicomachean Ethics* 6. 13, as Paul Vander Waerdt has reminded me, he explicity discusses the rational faculty of *deinotēs* (cleverness) and contrasts it with *phronēsis* (practical wisdom) as having no tendency in the direction of good rather than evil. The tendency to good belongs not to *logos* (reason), but to *phronēsis* and to *orthos logos* (right reason). Even in Plato's *Laws*, we find the beginnings of the Aristotelian view, when Plato says that people can be superlatively rational (*panu logistikoi*), and yet not love what seems excellent to them.[118]

The Stoics alter the concept of reason in yet other ways. With Chrysippus, it becomes a collection of conceptions, both deliberately cultivated ones (*ennoiai*) and naturally acquired preconceptions (*prolēpseis*). Morevoer, the role of reason is enormously expanded, as has been seen, leaving non-rational animals with little but appearances (*phantasiai*).

One of the most interesting transformations of the concept of reason provides us with an amalgam of Plato, Aristotle, and the Stoics. It is found in the Middle Platonist treatise *Didaskalikos*.[119] Since reason (*logos*) is, as Chrysippus said, a collection of conceptions, it can be distinguished from intellect (*nous*) as being its tool (*organon*). I have mentioned earlier how Chrysippus' naturally acquired conceptions become for this Platonist author natural conceptions recollected from a previous life, while the cultivated conceptions conform to Aristotle's account of concept acquisition, which is hereby allowed in alongside Plato's. This piece of Aristotelizing is given a Platonic stamp when the matching of perceptions with memories is described in the language of Plato's *Theaetetus*. The net result is two kinds of reason. The empirically acquired conceptions are called belief-type reason (*doxastikos*

[117] Michael Frede, 'The Stoic Doctrine of the Affections of the Soul', in M. Schofield and G. Striker (eds.), *The Norms of Nature* (Cambridge, 1986), 93–110: 100–1. I should acknowledge the rival interpretations of *de An.* 3. 9 put to me by Michael Frede and expounded by Terry Irwin, *Aristotle's First Principles* (Oxford, 1988), 595 n. 2, according to which *de An.* 3. 9. 432ª22–ᵇ7 does not *endorse* the claim that desire is an entirely distinct capacity from reason. On the other side, Paul Vander Waerdt agrees that 3. 9 is rejecting the inclusion of rational desire within reason ('Aristotle's Criticism of Soul-Division', *American Journal of Philosophy*, 108 (1987), 627–43).

[118] *Laws* 689a–c.   [119] *Didaskalikos*, ch. 4.

logos), while the recollected ones form a knowledge-type (*epistēmonikos*) reason concerned with intelligibles.

The empirically acquired conceptions of *doxastikos logos* are still found in the sixth century AD in the Athenian Neoplatonist Priscian of Lydia.[120] Strong reservations are voiced by his near-contemporary Olympiodorus of Alexandria.[121] But on the whole the Neoplatonists accepted empirically acquired concepts alongside the non-empirical ones, while in various degrees downgrading them.[122]

Another conception of reason, that of the memorist doctors, has now been encountered several times. They dismissed reason as being no more than an unnecessary facility for Aristotelian syllogizing. By contrast, what would ordinarily be called reasoning was a function of memory. With this stress on memory, surprisingly, the champions of *doxastikos logos* would so far be in agreement.

In Neoplatonism, the distinction between intuitive intellect (*nous*) and reason (*logos, logikē ousia, logikē zōē, logikē energeia, logikē psukhē*) became accentuated. Reason is thought of as a function of the soul (*psukhē*), rather than of the intellect,[123] and is placed lower in the ontological hierarchy.[124] Unlike intellect, reason makes transitions from one step to another. Reason (*logos*) and reasoning (*logismos*) are connected with a discursive kind of thinking (*dianoia*) which Plato assigned to mathematics in the *Republic*, and classed below philosophical understanding.[125] And the

[120] Priscian of Lydia, *Metaphrasis of Theophrastus' 'de Anima'*, *Commentaria in Aristotelem Graeca*, supp. vol. 1, part 2, p. 19, lines 10–13.

[121] Olympiodorus, *Commentary on Plato's 'Phaedo'*, lecture 12. 1, lines 9–25, Westerink.

[122] Empirically acquired concepts are accepted by Porphyry, Syrianus, Proclus, *in Eucl.* 51. 4–13, Hermeias, *in Phdr.* 171. 10, Ammonius, Simplicius, *in Cat.* 84. 24–8, and Philoponus. The case of mathematical concepts is studied by Ian Mueller, who gives the remaining references in 'Aristotle's Doctrine of Abstraction in the Commentators', in Richard Sorabji (ed.), *Aristotle Transformed: The Ancient Commentators and their Influence* (London, 1990), ch. 20. According to Mueller, Syrianus and Simplicius(?), *in de An. 3*, see empirically acquired concepts as used alongside others in ordinary mathematics, but not in mathematics of the Pythagorean kind. Proclus sees them as not used in mathematics at all.

[123] Simplicius(?), *in de An. 3* 217. 28–32; 218. 29–32; 221. 24–8.

[124] Simplicius, *in de An.* 40. 20–2; 102. 11–12; Simplicius(?), *in de An. 3* 217. 28–32; 218. 29–32; 220. 21–6, 28–34; 221. 24–8.

[125] Simplicius(?), *in de An. 3* 226. 36–7; Philoponus, *in de An.* 260. 18; cf. Plato, *Rep.* 511d.

contrast is most commonly expressed as that between *dianoia* and *nous*.

Boethius passed this Neoplatonist distinction on to the Latin-speaking Middle Ages. He says that reasoning (*ratiocinatio*) is related to intellectual understanding (*intellectus*) as time to eternity, involving as it does movement from one stage to another.[126] Thomas Aquinas knew and qualified this view. There are two different exercises (*actus*), he agrees. For reasoning (*ratiocinatio*) involves moving towards understanding (*intelligere*). But these two exercises are exercises of one and the same power, just as are motion and rest. So reason (*ratio*) is not after all a distinct power from intellectual understanding (*intellectus*).[127]

[126] Boethius, *Consolation of Philosophy* 4, prose 6; cf. *On the Trinity* 2, lines 16–17.

[127] Thomas Aquinas, *Summa Theologiae* 1, q. 79, a. 8. I have already acknowledged the helpful comments of Michael Frede and Jonathan Barnes. I should like also to thank Malcolm Schofield, Gisela Striker, and other members of the conference in Berlin on 25 July 1991. Further acknowledgements are made in my book *Mind and Morals, Man and Beast: The Origins of the Debate on Animals* (London, 1993).

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The following abbreviations are used in this index: